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[ORIGINAL COMMUNICATION.]

PRACTICAL TEST FOR THE IDENTIFICATION OF POTASSIUM.

BY C. W. TEETER, PH.C.

WITH the "flame test," when but a small percentage of potassium exists in presence of an excess of other materials, as for instance arsenic or ammonium compounds, much hesitancy may be experienced in deciding its presence or absence. Through an effort to approach more absolute certainty regarding its identification the following test has been improvised: In a suitable dish heat the substance, or residue obtained by evaporation and supposed to contain potassium, and carefully add sulphuric acid until no further effervescence is caused, continuing the heat until sulphuric acid fumes begin to rise, then remove. Now add freshly prepared milk of lime magma until the mixture remains alkaline. Filter, adding sufficient water through the filter to exhaust all soluble salts and render the filtrate slightly acid with hydrochloric acid; then add solution of baric chloride until no more precipitate forms, and evaporate to dryness. Extract the residue with a small portion of 75% alcohol (alcohol 3 vols., water 1 vol.) and filter into a test tube. To this add double its quantity of alcoholic solution of nitrophenic acid (1 part to 50) when, if potassium be present, yellow prismatic needles of potassium nitrophenate will soon appear. With careful manipulation, avoiding excess of both solvent and reagent, eight milligrammes of potassic sulphate yield an abundant crop of crystals easily recognized with certainty, not requiring the use of a lens.

[ORIGINAL COMMUNICATION.]

A COMMON AND DANGEROUS ADMIXTURE OF CONIUM FRUIT WITH ITALIAN ANISE.

BY C. L. LOCHMAN.

ABOUT eight years ago, I attempted to raise anise plants (*Pimpinella Anisum*, L.), and planted Italian anise fruit, but to my surprise got only a crop of *Conium maculatum*. Since that time I repeated the experiment a number of times, and in every instance more conium germinated than anise. Last spring I determined to test the matter more fully, and procured Italian seed from wholesale dealers in New York, in order to get them as fresh as possible, and six specimens from local druggists. These seeds were in store from 2 to 4 years. I laid out patches of ground about 18 inches (0.45 M.) square, in each of which I scattered about 1½ drachms (6 Gm.) of seed, and while only isolated plants of anise appeared, I counted in each patch from 15 to 30 thrifty conium plants. Some of these bore fruit the same year, and the others are still in a healthy condition. At the same time I planted the so-called German anise, but no conium germinated, and I concluded it to be free from the latter.

The books speak of accidental admixture of conium fruit with anise, but I am not aware that the real source of conium is suspected. Conium is a biennial plant, but there are aberrations from the usual law as is the case with hyoscyamus, and some plants produce a crop of fruit the first year, and are consequently harvested with the annual anise. As the conium possesses much greater vitality than the anise, the contamination may reach an alarming extent if the planters are indifferent in regard to the purity of the seed. From experiments in planting Italian anise, and also in examining it under a lens, I judge the proportion of conium fruit is from 2 to 5 per cent, if not more. I do not believe there is a single lot of Italian anise in the market that is not contaminated with conium fruit. Any one can satisfy himself of the presence of conium by triturating the suspected anise in a mortar with a solution of potassa, which will develop a disagreeable, mouse-like odor, or by planting the fruit and observing their growth. The base leaves of conium are tri-pinnate, while the radical leaves of anise are roundish-cordate, lobed and crenate, but the stem leaves are also pinnate. The distinguishing marks of anise and conium are given in the U. S. Pharmacopœia and the dispensatories, but their characteristics are not as readily recognized as might be inferred from the printed description. There is also a marked difference in the appearance of Italian and the commercially known German anise. The former is considerably larger, proportionably longer, and lighter in color. The German anise resembles conium more closely than the Italian, though it seems to be free from the admixture of conium as far as my observation goes.

BETHLEHEM, PA., April 14th, 1887.

Note by Ed. Am. Drugg.—Mr. Lochman has forwarded to us, by mail, samples of conium plants grown from seed mixed with Italian anise, and fruiting the first season.

AN IMPROVED FILTERING FUNNEL.

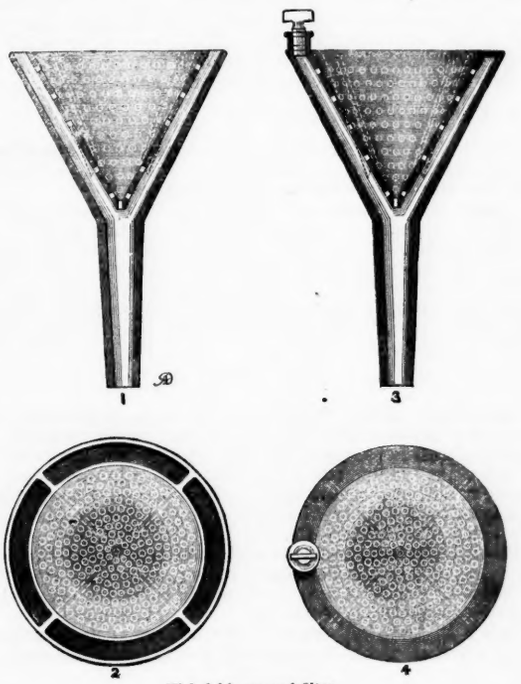
AN improved funnel for rapid filtration has recently been patented in England (Pat. No. 8,375) by Wallace Christopher Nickels.

Filtration with ordinary smooth-side funnels is usually quite slow and tedious. To hasten the operation, various devices have been used, such as a glass-rod placed into the funnel, or funnels with indented or ribbed sides. Yet when a vacuum pump is to be employed in connection with a funnel, such contrivances are usually inadmissible, as the paper is required to lie closely to the surface of the funnel.

The new funnel here presented appears to offer decided advantages, provided it can be furnished of different sizes and at a reasonable price.

Figs. 1 and 2 represent a double funnel, the inner one being perforated all over, and attached to the outer one by suitable ridges or projections.

The filter paper is placed in the inner funnel in the usual manner, and the operation commenced, but instead of the filtrate only running from the bottom of the funnel, it immediately flows through the various holes, and thence down the sides, and away. Should the paper and contents be difficult to wash, the funnel spout must be connected with a piece of india-rubber tube and a clamp thereon. When the mother liquor has filtered away, the clamp may be shut, and the wash liquor run into the space *between the two* funnels, it will at once flow through the paper and contents into the inner funnel. The clamp is now opened and the liquor run off, thus fulfilling exactly the function of a *washing filter press*. Indeed, the perforated inner funnel corresponds precisely to the perforated sheet so well known as being one of the chief advantages of the "Dehne Filter Press."



Nickels' improved filter.

Figs. 3 and 4 represent the same funnel, but with the space between the two cones *closed* at the top, provided, however, with a cock for washing or the admission of air. This funnel is for use in connection with a vacuum pump. *The whole surface of the paper* is exposed to the vacuum, but with this pattern it is not desirable to carry the perforations of the inner funnel right to the top as shown in the engraving; half-way up will be found sufficient.

Filtering operations and subsequent washing, which with an ordinary funnel have taken ten hours, have been finished with these funnels in forty minutes.

Less washing liquid, by far, is required; an important consideration in the case of volatile liquids, such as ether, benzol, etc.

The matter upon the inside of the paper will also dry much more quickly, a current of air constantly passing between the two funnels, and lastly, the funnel may be used in a vessel into which it fits tightly, the displaced air finding vent between the two funnels.

Mr. B. Nickels, F.C.S., of 104 Leadenhall street, London, is ready to give further information regarding these funnels.

Detection of Certain Medicinal Chemicals in the Urine.

THE critical review of urinary tests by Dr. F. Penzoldt,* of which we have given abstracts in our preceding numbers, is followed in the original pamphlet by a short chapter on the best methods of recognizing in the urine the presence of certain medicinal chemicals, of which the rate of absorption and elimination are likely to offer useful data to the physician, and the search for which is often intrusted to the hands of a pharmaceutical friend or acquaintance.

In the words of the author: "It is frequently of the utmost importance, for the critical judgment of a certain case, to know whether the patient has actually taken a certain remedy or not. For instance, it is often desirable to convince one's self, in case of syphilis, whether iodide of potassium has been taken, or in a case of rheumatism, whether salicylic acid has been used. A few of them are so characteristic in their reactions that they may *serve as detectives whether* a certain drug has been taken or not according to instructions. It is only necessary to add a sufficient quantity of them, in therapeutically ineffective doses, to the real remedy, for instance, *salicylic acid*, or better, *sodium salicylate*, in doses of 8 to 16 grains, may be added to remedies which are themselves difficult to detect; or *iodide of potassium* (about ½ grain). If these are detected in the urine, the prescribed remedy may be assumed to have been taken.

1. *Iodide of Potassium.*

Mix the urine with a few drops of crude *fuming* nitric acid and some chloroform (about one-fourth the volume of the urine); then shake. The chloroform, after settling, will be found to have a reddish-violet tint.

This test is certain, very sharp, and easy of execution.

2. *Bromide of Potassium.*

Add to the urine fresh chlorine water, and chloroform or bisulphide of carbon, and shake. If bromine was present, the chloroform will have a yellow color.

This test is certain, but much less sharp than that for iodide. Bromine is recognizable only when present in considerable quantity. The chlorine water must be fresh; hence the test is not very suitable in practice. [The fresh chlorine water may be replaced by a little chlorate of potassium treated with just enough hydrochloric acid to decompose the chlorate completely, and then diluting with a little water.—ED. AM. DR.]

3. *Salicylic Acid.*

On adding ferric chloride to the urine, the latter will assume a bluish-violet color. If a very small quantity of salicylic acid is present, it is best to take a larger portion of the urine, previously acidulated with sulphuric acid, to shake it with an equal volume of ether, and to apply the reaction to the ethereal solution [or to the residue left after its evaporation.—ED. AM. DR.].

Though a similar reaction with ferric chloride is furnished by several bodies belonging to the aromatic series, the bluish-violet color is usually found in the urine only after salicylic acid has been taken.

The test is very sharp and easy of execution, particularly when ether has been used for extracting the acid.

4. *Antipyrin.*

After antipyrin has been taken, the urine acquires a yellowish-red to blood-red color. It is very easy to confound this with urine actually containing blood, since the latter shares with antipyrin-urine the property of being dichroic (red by transparent, and greenish by reflected light).

After addition of a few drops of dilute solution of ferric chloride, the color of the urine, which is reddish-yellow in thin layers, is converted into a handsome dark-red. In the case of a urine rich in phosphates, the resulting precipitate (of ferric phosphate) somewhat masks the color, which can only be well distinguished at the moment when the drops of ferric chloride solution fall into the liquid.

This test is uncertain, on account of the number of different substances capable of producing similar reactions. To distinguish it from the reaction for acetic ether, the liquid may be heated, when the red color will remain if it was due to antipyrin, while it will disappear if it was caused by acetic ether.

5. *Thalline.*

After the administration of thalline, the urine has usually a greenish-yellow to greenish-black color.

On adding ferric chloride to thalline-urine, the latter acquires a fine red color. On shaking the urine with ether, the latter dissolves out a substance which assumes an intense *green* color with ferric chloride (Jaksch). The same reaction occurs if chloroform be used instead of ether for shaking (Penzoldt).

Of course, a simple addition of ferric chloride is insufficient as a test. To distinguish the reaction from that with other substances, the agitation with ether or chloroform, and addition of *one* drop of ferric chloride so as to produce a *green* color is highly to be recommended. If too much ferric chloride is added, a red color is sometimes produced. If much thalline is present, the ether assumes a handsome rose-red color immediately after shaking. In presence of small quantities, however, the green color produced by ferric chloride in the ether solution does not make its appearance.

6. *Naphthalin.*

After doses of 30 grains or more per day, the urine acquires a dark-brownish tint, sometimes soon afterwards, at other times after long standing.

Pour a little urine into a test-tube, pour it out again so that only a few drops remain adhering to the glass, then add about 1 C.c. of concentrated sulphuric acid. The urine floating on the surface of the acid will show a handsome dark-green color, particularly at the place of contact of the two liquids. On shaking, the color is also communicated to the acid, but does not persist long (Penzoldt).

Since the green color produced by sulphuric acid has not been met with either in normal or in pathological urine, except it contained naphthalin, it probably is characteristic of this substance alone. It is probably due to the presence of naphthachinon.

The test is very sharp, and very easy of execution; but it requires the use of *highly* concentrated sulphuric acid, which is a necessary condition for success.

7. *Tannin.*

After the use of tannic acid, the urine will assume a grayish-green or blackish color, or deposit such colored precipitates on the addition of ferric chloride.

8. *Chrysophanic Acid* (from Rhubarb or Senna).

On adding solution of potassa to urine voided after the use of rhubarb or of senna—the urine being in this case naturally of an intense yellow or greenish-yellow tint—it acquires a yellowish-red to red tint. The reaction is obtained even more sharply if the urine is shaken with about one-half its volume of ether in a test-tube, and the test applied to the separated ether. The latter assumes a red color at the line of contact. On shaking, the red color is taken up by the solution of potassa.

The test with potassa alone is not certain. But it is important to know the fact that solution of potassa will produce a red color in such cases, in order to avoid being surprised by it, as it may be mistaken for reactions for blood, or for sugar, or for santonin. The modification above given (devised by Dr. Penzoldt) guards against these mistakes, since only chrysophanic acid, but not the other substances above mentioned, is taken up by the ether. If the ethereal solution does not separate easily from the aqueous solution after shaking, the addition of a few drops of alcohol will make it separate readily.

9. *Santonin.*

Santonin does not pass into the urine as such, but after its use (even after doses of only one and one-half grains in adults) the urine often acquires a greenish-yellow color, and there appears in it a substance, not yet fully known, which causes the urine to assume a red color when it is mixed with caustic potassa. It is distinguishable from the red color of rhubarb urine by being more of a rose-red character.

This difference of color is not sufficient to guard against a confusion with rhubarb-urine. The most characteristic distinction of santonin-urine is this, that santonin does not pass into the ether when shaken with the urine, while the chrysophanic acid does pass over.

10. *Copaiba.*

If hydrochloric acid is added to the urine after copaiba has been taken, the urine acquires a handsome red tint, changing to violet on heating. Chloride of lime or tincture of iodine facilitate this reaction. On boiling, a distinct resinous odor is developed.

This test is characteristic, quite sharp, and easy of execution. It is also useful to distinguish albuminous urine in which a turbidity forms by boiling and addition of acid from one in which the same phenomena are caused by the presence of copaiba.

South American Cinnamon.—At the exhibition of South American products held at Berlin in the early part of this year, some cinnamon bark was exhibited, which Professor Tschirch considered fully equal in aroma and sweet taste to the Ceylon cinnamon. It was in pieces about 2 inches broad and ⅛ inch thick. The essential oil prepared from it by Tschirch could not be distinguished from that of the Ceylon bark, though the yield was inferior. This is due to the fact that the pieces are taken from older branches which have a bark rich in stone-cells and therefore poorer in oil-cells. It is very low in price and should have a promising future. It was exhibited by Guimares and Valente of Pernambuco.

* "Aeltere und neuere Harnproben und ihr praktischer Werth." Von Dr. F. Penzoldt, Professor a. d. Universitat Erlangen. 2te Aufl. 8vo, Jena, 1886.

EXTRACTION-APPARATUS FOR AQUEOUS LIQUIDS.

E. GRAUER has designed a new form of apparatus for dissolving out, from aqueous liquids, such substances as are soluble in lighter or heavier solvents which are not themselves much soluble in water. For instance, when alkaloids are to be extracted from aqueous solution, or when oils or fats, or resinous substances are to be extracted. Two different forms of apparatus are designed according as the extracting liquid is heavier or lighter than water.

Fig. 1 illustrates the apparatus for heavier menstrua, in a schematic way. *A* is the reservoir for the heavy menstruum (bisulphide of carbon, chloroform, etc.). Another reservoir, at a higher level, *B*, contains the aqueous solution to be extracted. The faucet at *A* having been opened, the heavy menstruum will descend into the receptacle *C* and thence into the narrow coil, which may be made of any desired length. When the menstruum begins to rise in *a*, the faucet at *b* is opened, whereby the aqueous liquid is allowed to enter, which immediately, owing to its lesser specific gravity, will rise up into the coil, and in its passage upward be thoroughly extracted by the descending menstruum. The latter becoming saturated, or at least having extracted all that the aqueous liquid can yield, gradually flows over into *D*, where it is allowed to collect. From here it may be drawn over into the still (the circular figure in the cut) from time to time, the faucet at the bottom of *i* being opened for this purpose.

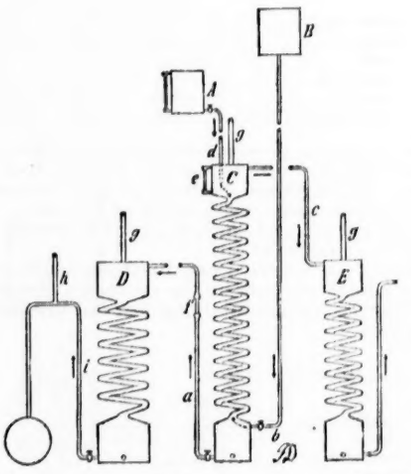


FIG. 1.

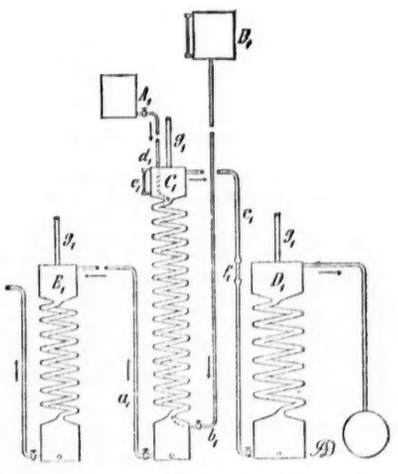


FIG. 2.

Grauer's extraction apparatus.

By the application of heat, the menstruum is then distilled off, and may be conveyed through *h* and a condenser (not shown in the cut) back into the the reservoir *A*.

Fig. 2 shows the arrangement of the apparatus for menstrua lighter than water. In this case, the aqueous liquid enters from above (*A*), while the menstruum, contained in *B*, enters from below, at *b*. As it passes upwards through the coil, it becomes saturated, collects on the surface of the aqueous liquid in the reservoir *C*, and passes out through *c*.

When using the apparatus, it is necessary to see that the heavier liquid running off below—in the former case the solvent, in the latter case the aqueous solution—is allowed to rise to such a height in the tube *a*, that an equilibrium is established between the two liquids. This may be readily seen by observing the glass gauge tubes *e* and *e*, in which *both* layers must be constantly visible during the operation.

The exhausted liquid, in both cases, passes out in a direction opposite to that of the menstruum. In Fig. 1, it passes out through *c* and collects in *E*, where it has further chance of separating any mechanically accompanying portions of the menstruum. In Fig. 2, the exit takes place through *a*.

The inventor of the apparatus, E. Grauer, states that he finds the following plan to be particularly serviceable for depriving the residuary aqueous liquid of the quantity of volatile solvent (chloroform, ether, etc.) which it retains in solution. He causes the liquid to pass through an opposing current of some high-boiling hydrocarbon or paraffin oil, which while insoluble in water, is yet capable of dissolving out nearly all of the retained menstruum.

In constructing an apparatus of this kind, it must be remembered that when two non-miscible liquids are brought and agitated together, either liquid will, to a certain extent at least, be diminished in volume to such an extent as it is soluble in the other. This must be taken into account when constructing the apparatus, so as to make allowance for the increase in volume, if this is considerable.—*Dingler's Pol. Journ.*, 262, 475.

Note on Some Incompatible Mixtures.

J. RUTHERFORD HILL writes the following note on two incompatible mixtures to the *Chem. and Drugg.*:

The first of these occurs in a gargle containing alum, chlorate of potassium, and bicarbonate of potassium. The aluminic sulphate in the alum reacts with the potassium bicarbonate, thus:

$$Al_2 3SO_4 + 6KHCO_3 = 3K_2SO_4 + Al_2 6HO + 6CO_2$$

alumin. sulphate	potass. bicarb.	potass. sulphate	alumin. hydrate	carbonic acid

In this way (if the bicarbonate is present in sufficient quantity), the astringent action of the alum is lost. It is, therefore, a case of both chemical and therapeutic incompatibility. The only way out of the difficulty is to suggest the omission of the potassium bicarbonate.

The second occurs in the following mixture:

Quininæ Sulphatis	grs. xxiv.
Acid. Nitric. dil.	q. s.
Potassii Iodidi	℈ij.
Aquæ	ad ℥vi.

In this case, the nitric acid liberates iodine from the potassium iodide as follows:

$$4HNO_3 + 2KI = 2KNO_3 + 2H_2O + 2NO_2 + I_2$$

The liberated iodine combines with the sulphate of quinine to form the insoluble iodo-sulphate of quinine or herapathite which is gradually deposited as a greenish-brown sediment. The best thing to do in such a case is to substitute sulphuric for nitric acid.

Distinction of Nickel, Tin, and Silver when used as Plating.

ACCORDING to Leviton, the following simple methods may be used to determine the character of a plating, provided it is either nickel, or tin, or silver.

I. Heat a small spot of the surface with a flame. Then the following colors will appear successively:

A. In the case of *nickel-plating*:
1. Yellowish-gray color.
2. Violet tint by reflected light.
3. Blue tint by reflected light.
4. Uniform gray color, with green reflex.

B. In the case of *tin-plating*:
1. Dirty yellowish-gray color.
2. Faintly violet tint, rapidly disappearing in reflected light.
3. Gray shading with spotted surface.
4. Rough-looking surface, with distinct yellow patches.

C. In the case of *silver-plating*:
1. No visible change.
2. White, with sharply-defined violet dots.
3. Suddenly gray, with white dots.
4. Yellowish-gray, rough surface.

On introducing the plated surface into a solution of peroxide of hydrogen mixed with powdered binoxide of manganese, or on applying such a mixture to it, the three metals will be recognized as follows:

1. Nickel will assume a reddish-violet tint after about ten minutes.

2. Tin will acquire a scarcely perceptible dull gray color.

3. Silver will remain unaltered.

On adding a soiution of sulphide of antimony moderately warmed:

1. The nickel surface will remain unaltered.

2. The tin coating will dissolve.

3. The silver coating will turn black.—*Journ. Chem. Soc.* and *Rundschau* (Prag).

Selected Formulæ for Dressings.

AMONG the formulæ compiled or devised by Mr. Eugen Dieterich, and published in his *Neues Pharmaceut. Manuale*, we find a number of receipts for preparing antiseptic dressings, which we publish for the purpose of giving our readers an opportunity to compare them with other formulæ previously published. We have put on record a considerable portion of our own experience regarding *some* of these preparations, and shall have much more to say hereafter. We would remark here, however, that it is not enough, in all cases, to merely know the composition of the impregnating liquid. There are some points connected with the manipulation which it is well to know to obtain a satisfactory product.

1. *Benzoated Cotton* (Bruns, Jr.).

	3%	4%	5%	10%
			PARTS.	
Benzoic Acid	40	60	75	150
Castor Oil	30	30	30	60
Alcohol	2,925	2,925	2,925	2,790
Absorbent Cotton	1,000	1,000	1,000	1,000

Saturate the cotton with the liquid, prepared after any of the given proportions, then press it until it weighs 3,000 parts, dry it at a heat not exceeding 86° F., and pick or card it.

Note.—Any prepared cotton should be kept in suitable receptacles or wrappers (glass, tin-foil, parchment, or paraffin-paper, etc.) to prevent loss by evaporation, or the accession of septic material.

2. *Borated Cotton.*

	5%	10%	20%
	PARTS.		
Boric Acid	75	150	300
Boiling Water	2,925	2,850	2,700
Absorbent Cotton	1,000	1,000	1,000

Proceed as in No. 1, and dry with the aid of a moderate heat.

Mr. Dieterich directs to add ⅛ part of fuchsine to the 20% solution. We are, however, decidedly in favor of reserving the fuchsine or any other red color to *poisonous* dressings, such as sublimate cotton or gauze. If *red* be used also for others, it will cease to be a distinctive token of dressings which ought to be used with caution.

Another matter is this, that boric acid, when it crystallizes upon the fibre on cotton, is very apt to fall off in form of dust. We have been in the habit of using a resinous tincture, sometimes with the addition of a little glycerin, to make the fibre more adhesive. A little tincture of benzoin or of olibanum will answer well.

3. *Carbolated Cotton* (Bruns, Jr.).

	5%	10%
	PARTS.	
Carbolic Acid	75	150
Castor Oil	30	60
Rosin	300	450
Alcohol	2,600	2,340
Absorbent Cotton	1,000	1,000

Proceed as in No. 1.

4. *Chloride of Zinc Cotton* (Bardeleben).

10 per cent.

Zinc Chloride	150 parts.
Boiling Water	2,850 "
Absorbent Cotton	1,000 "

Proceed as in No. 2.

5. *Cocaine Cotton.*

3 per cent.

Cocaine Hydrochlorate	3 parts.
Distilled Water	100 "
Alcohol	50 "
Absorbent Cotton	100 "

Saturate with the liquid (the cotton being kept below it by means of weights, but on removal, it is to retain the whole of the liquid), and dry at 86° F.

6. *Cocaine-Borated Cotton.*

Cocaine Hydrochlorate	2 parts.
Boric Acid	5 "
Carbolic Acid	3 "
Glycerin	10 "
Alcohol	50 "
Distilled Water	80 "
Absorbent Cotton	100 "

Saturate as in No. 5. Dry by exposure to air.

7. *Cocaine-Morphine Cotton.*

Cocaine Hydrochlorate	3 parts.
Morphine Hydrochlorate	1.5 "
Alcohol	75 "
Distilled Water	75 "
Absorbent Cotton	100 "

Proceed as in No. 6.

This is used for tamponing carious teeth, to allay toothache.

8. *Ferrated Cotton.*

Solution of Ferric Chloride (sp. gr. 1,280)	750 parts.
Glycerin	75 "
Distilled Water	1,175 "
Alcohol (90%)	1,000 "
Absorbent Cotton	1,000 "

Proceed as in No. 2.

Dry with exclusion of daylight, and keep the product in brown bottles.

9. *Acetate of Aluminium Cotton* (Burow).

	5%	10%
	PARTS.	
Sol. Acetate Aluminium	1,000	2,000
Distilled Water	2,000	1,000
Absorbent Cotton	1,000	1,000

Proceed as in No. 2.

10. *Ichtyol Cotton.*

	20%	50%
	PARTS.	
Sulph-ichtyolate Ammonium	300	750
Alcohol	700	750
Distilled Water	2,000	1,500
Absorbent Cotton	1,000	1,000

Proceed as in No. 1, drying at a temperature not exceeding 25° (77° F.).

11. *Iodoform Cotton* (Mosetig).

	4%	5%	10%	20%
Iodoform	60	75	150	300
Ether	600	750	1,250	2,000
Rosin	..	..	50	100
Castor Oil	..	..	50	100
Alcohol	2,340	2,175	1,500	500
Absorbent Cotton	1,000	1,000	1,000	1,000

In preparing these solutions and saturating the cotton, some rapidity must be used to prevent loss by evaporation. When soaked, each lot is best wrapped in parchment-paper, some holes made at the sides, and enough liquid pressed out until the residue weighs 3,000 parts. Dry by exposure to air.

Note.—As we have explained elsewhere, we prefer to make the fabric soak up the *whole* of a certain volume of iodoform solution containing just the amount of iodoform required.

12. *Naphthalin Cotton.*

	10%
Naphthalin	150 parts.
Rosin	30 "
Castor Oil	20 "
Alcohol	1,800 "
Absorbent Cotton	1,000 "

Dissolve with the aid of heat, soak the cotton in the hot solution, and quickly express to 3,000 parts. Dry by exposure to air.

13. *Salicylated Cotton* (Bruns, Jr.).

	5%	10%
	PARTS.	
Salicylic Acid	75	150
Castor Oil	50	100
Alcohol	2,875	2,750
Absorbent Cotton	1,000	1,000

Proceed as in No. 1.

14. *Salicylated Cotton* (Thiersch).

	4%	10%
	PARTS.	
Salicylic Acid	60	150
Glycerin	10	25
Alcohol (90%)	430	825
Boiling Water	2,500	2,000
Absorbent Cotton	1,000	1,000

Proceed as in No. 1.

15. *Sero-Sublimate Cotton* (Lister).

	½%
Corrosive Sublimate	7.5 parts.
Horseblood-Serum	750 "
Distilled Water	2,250 "
Absorbent Cotton	1,000 "

Dissolve the corrosive sublimate by trituration in the blood-serum, add the water, and saturate the cotton with the liquid. Press out to 3,000 parts.

If horseblood-serum cannot be had, dissolve 7.5 parts each of corrosive sublimate and of chloride sodium, by trituration, in 40 parts of egg-albumen diluted with 2,950 parts of distilled water. Soak the cotton in this.

Dry at a temperature not exceeding 86° F., and keep it from the light.

16. *Sublimate Cotton.*

	½%	1%
	Parts.	
Corrosive Sublimate	3.7	7.5
Glycerin	300	300
Alcohol	700	700
Distilled Water	2,000	2,000
Absorbent Cotton	1,000	1,000

Proceed as in No. 1.

17. *Thymolated Cotton* (Ranke).

	2%	5%
Thymol	30	75
Rosin	60	150
Spermaceti	410	475
Alcohol (90%)	2,500	2,300
Absolute Alcohol	1,000	1,000

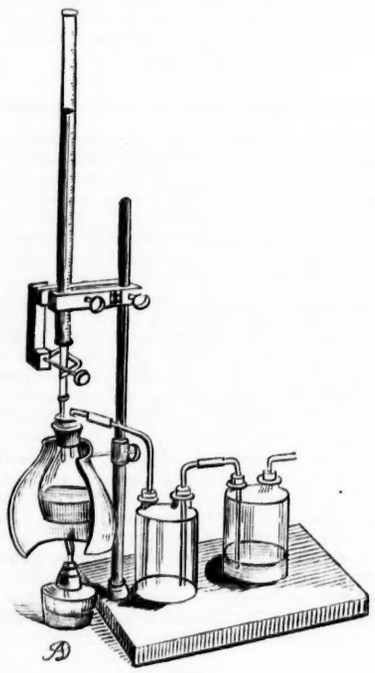
Dissolve with the aid of a gentle heat, saturate the cotton, express to 3,000 parts, and dry by exposure to air.

18. *Tannin-Carbolated Cotton.*

(Tannin, 10%; Carbolic Acid, 8%).

Tannic Acid	150 parts.
Carbolic Acid	120 "
Castor Oil	230 "
Alcohol	2,500 "
Absorbent Cotton	1,000 "

Proceed as in No. 11.



APPARATUS FOR ESTIMATING SUGAR.

The apparatus, recently described by A. W. Stokes in *The Analyst*, for the estimation of sugar contains several useful features which it will be of advantage to put on record, as they may be of benefit to our readers.

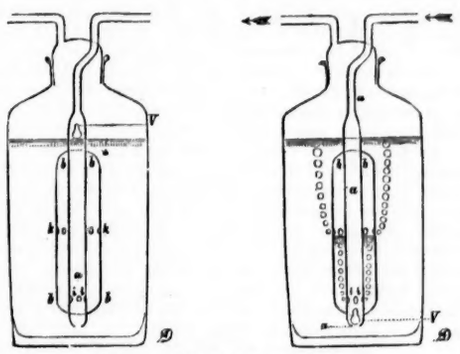
The alkaline copper solution (Fehling's) is contained in a burette which is connected by rubber and glass-tubing directly with the flask containing the liquid to be tested. The latter is closed with a rubber cork, through which passes the tube connecting with the retort, and also another leading to a Woulff's bottle. A screw pinch-cock of the shape outlined in the cut is preferred by the author, as it is more easily regulated while the flame is burning below the flask. The flask is half surrounded by about half of a white gas-globe or shade, which makes an excellent background to observe the tint of the liquid. This feature, as well as the prevention of loss by spattering, are the main advantages of the apparatus, so far as it is applicable in our judgment to the estimation of glucose. On the other hand, the radiation of heat from below may cause such an expansion of the liquid in the burette that a notable error may be introduced in this manner.

Iodoform Pencils.—Dr. Oscar V. Petersen, of St. Petersburg, recommends in the treament of syphilis pencils made of 50 or 70 per cent of iodoform, together with glycerin and gum arabic, and inclosed in a wooden holder. In the case of a chancroid ulcer, the pencil need only be applied to its surface which then becomes coated with a more or less thick layer of iodoform. The chief advantage of the method is that the patient remains absolutely free from an unpleasant and tell-tale odor.—*Brit. Med. Journ.* and *Chem. and Drugg.*

AN IMPROVED WASH-BOTTLE.

In order to insure the perfect washing of a current of gas, it is often desirable to pass it through more than one wash-bottle. This may, however, be avoided by using the apparatus here illustrated, which has been designed by Greiner and Friedrichs, of Stützerbach in Thuringia (Germany).

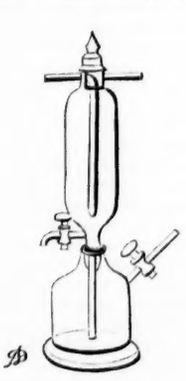
Fig. 1 shows the flask charged with wash-fluid, but not in operation. The stopper, exit and delivery tube, and the inner washing apparatus are all of glass, and one piece. The inner tube, *a*, contains a float, *V*, which is seen in Fig. 1 to float on the surface of the water. When gas passes down this tube, the float is pushed to the lower orifice (see Fig. 2) and closes it, thereby compelling the gas to pass out through the holes, *i i*, and to enter the liquid in the external tube *b*, from which it finally escapes by the apertures *k k*. Thus it will be seen that the gas is compelled to pass through two layers of liquid. As soon as the current is interrupted, the float *V* will rise, and thereby clear the orifice of tube *a*, in consequence of which the liquid contained in the body of the flask will soon mingle uniformly with that contained in the wash-tubes.



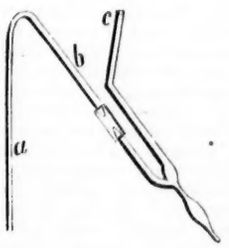
Greiner and Friedrichs' wash-bottle.

ABSORPTION- AND WASH-BOTTLE.

To prevent gases which are to be absorbed or washed by some liquid from affecting the ordinary corks or rubber stoppers with which wash-bottles are usually stoppered, an absorption vessel wholly constructed of glass has been designed by Greiner and Friedrichs. Its construction is easily intelligible from the cut. The lower vessel serves as a reservoir for the wash-liquid. By blowing air into the lateral tube of the lower vessel, some of the liquid is driven into the upper vessel, or wash-bottle proper.—*Chem. Zeit.*, 11, 112.



Greiner and Friedrichs' wash-bottle.



Brilka's siphon.

A NEW SIPHON.

Brilka has devised a new siphon which is based upon the same principle as the injector. On blowing into the open end *c* of the shorter tube, the air escaping below will cause a rarefaction of the air contained in the longer leg *a* of the siphon proper, which dips into the liquid to be drawn off. In consequence of this, the liquid passes over and continues to run off, as in any other siphon. As the instrument is started by blowing, and not by suction, there is no danger of any of the liquid being drawn into the mouth.—After *Chem. Zeit.*, 1887, 187.

Improved Hectographic Prints.—According to the *Pharm. Centralhalle*, the distinctness and sharpness of hectographic prints may be very materially heightened by wetting the paper upon which the prints are to be made with alcohol, and removing the excess of alcohol by pressing between blotting paper.

Production of Pulque and Mescal in Mexico.*

PULQUE and mescal, which are fermented and distilled liquors with a great variety of modifications, are made from the sap and root of the maguey plant or aloe, known as the *Agave Americana*. This plant, in some thirty varieties, grows wild throughout Mexico, and in many districts it is carefully cultivated. It enters into the domestic economy and habits of the Mexicans, and forms one of the most useful products of the republic. Its most important production is the fibre yielded by the long, narrow serrated leaves when pressed, and this fibre is said to be almost equal in quality to the best Yucatan heniquen, or jute. Ropes of great strength are made from some varieties of the plant growing in special localities, but the pressed leaves are everywhere of importance for the manufacture of paper. For many centuries past, textile fabrics have been made from them by the Indians. It is stated, in a report of the United States Agricultural Department, that the Mexican Government is liberally encouraging the paper manufacture, and a large company has been organized to cultivate maguey plants on Government lands. The list of products furnished by the maguey is very large, and besides pulque, or Mexican beer, and mescal, the chief spirit of the country—a distillation resembling a coarse quality of gin, and very intoxicating in its character—there is a fine quality of brandy, known as *tequila*. The daily consumption of pulque, or beer, in the city of Mexico alone appears to be about 150,000 quarts, and it appears to be the universal beverage of the country. Being in strength about equal to common cider, it is of whitish hue, and has a slightly acid taste, with an odor which makes it very disagreeable to all but the natives. A maguey plant will reach its maturity in from five to ten years, and grows most rapidly in the warm sections, though not so luxuriantly in the hot coast belts. Large quantities of mescal are produced in the State of Oajac, and *tequila*, or maguey brandy, comes chiefly from the district of the same name, in the State of Jalisco. *Tequila* is highly valued on account of its purity and strength. The Mexican Indians are said to be inordinately fond of pulque; it is consumed in large quantities, and forms the basis of a great number of liquors, all of which are intended to make it stronger or more agreeable. Pulque is made a source of large domestic revenue by all the States; the daily tax paid on it at the gates of the city of Mexico is estimated at about £1,000. Another liquor produced direct from the maguey is known as hydromel, or honey juice, being the pure and unfermented juice or sap of the agave. *Pulque de chirimoya* is made from the hydromel of the cultivated agave, cut unripe at the age of three or four years. This is put into skins which have contained the "mother," or pulque made at the regular age, five years and upwards. When transported, the shaking gives it flavor and strength. A choicer liquor is made by heating, underground, old heads of agaves, grinding them coarsely on a stone, and then settling them to ferment in a pulque vessel, after which the contents are distilled. The first jar is known as *bingeré*, and the rest as *bingarroté*. *Pulque tlachique*, a favorite beverage, is made from tender agaves, cut when unripe. There are various admixtures made in connection with this. It is quite thick, and *quahchan* is the same, with the fruit of the Peru tree, deprived of its peel, and left in the liquid for three or four days. *Capololte* is made of the same variety of the pulque, with the seed of the red Peru tree infused therein. After fermentation, it is hot and noxious. A species of mescal is made by distilling *pulque tlachique* and molasses, after being allowed to ferment in goat-skin vessels. In addition to these, there are about seventeen other compounds made by mixing sugar and sweet almonds ground with the juice of corn-stalks, sugar or honey being added; by mixing white pulque with blackberries, capulins, pepper, and sugar; by mixtures of prickly-pear juice, and fermenting or distilling the same; by adding to white pulque honey, pepper, anise, and capsicum, leaving the same to ferment for twenty-four hours; by mixing pulque with wild plums (*jabos*) and sugar. *Mantequila* is made of pulque, brandy, and sugar. A wine named *rescado* is made of the trunks of agaves deprived of leaves, cooked in an oven for about a fortnight, then mashed and put with pulque into skins, to which is added mountain hysop, and the liquid is left for two days. *Tepemé* is a wine or liquor produced from the pressed leaves of the narrow agave, in which acacia wood is boiled, in order to give it strength. *Mescalde guadalajara* is made by first fermenting in skins, water, honey, and agave heads, and then distilling the liquor. The maguey plant, from which the pulque is made, grows as high as ten or fifteen feet, and the miel or juice is sucked up through a siphon made of a large gourd with a cow's horn in it, which is called *acajete*. Accompanying the men whose business it is to collect this juice, and who are called *thachiqueros*, are donkeys, which have their backs laden with sheep skins, into which the juice is poured after being sucked up by the siphons. The plant is prevented from flowering at the age when it usually yields pulque, and during its growth it throws out shoots or young plants, which are removed from the parent plant when about three feet high, that is, after two years' growth. These are planted out at a distance of a yard apart. The *thachiqueros* go periodically among the plants, and mark those which are fit for tapping by cutting a cross on the top of the highest stalk of each plant. When the maguey is fit for tapping, the *thachiqueros* trust aside the spiky stalks, and cut out the meyolote or central spoke, leaving a cavity which they visit after eight days, when it is full of juice. The plants only begin to yield juice when the flower stalk is on the point of its development, and this is generally discovered by the direction of the radical leaves. When the flower stalk is on the point of formation, these leaves rise from the earth to which they are inclined, and endeavor to form a junction, so as to protect the flower. They become also of a clearer green, and there are other signs which are closely watched by cultivators. The maguey, after the expiration of eight days, is tapped regularly three times a day, and yields over a gallon a day, and bears for three months, each plant producing about one hundred and twenty gallons before it dies. The juice, when extracted, is conveyed to a large building fitted with square wooden frames, on which are stretched cowhides shaped like vats, the hair being upwards. The liquid appears to curdle during fermentation, and has an offensive odor; fresh juice is applied three times a day, and when drawn off, the liquor is placed in barrels and sold to the pulqueries, or drinking-places. The city of Apam produces the finest pulque sent to the city of Mexico, and this sells readily at about fourpence a gallon. The maguey will flourish on the most arid and rocky soils, is not affected by drought, hail, or even severe frosts, and the plant is used for almost every domestic purpose, from making intoxicants to the thatching of huts.

* From the Journal of the Society of Arts,

Picrate of Ammonium in Malarial Diseases.

DR. H. MARTYN CLARK, of the Amritsar Medical Mission, Punjab, has treated no fewer than 10,000 cases of malarial diseases with picrate of ammonium, and in half the cases he has kept a record. In nine cases out of 5,000 did the picrate fail, and in these quinine cured at once. The usual dose is from ½ grain to 1½ grains four or five times a day in pill. Half a grain is a fair average dose. Thus given the result is soon visible. In the great majority of the cases treated, ½-grain doses in the interval prevented the recurrence of the next attack of the fever, while in about 20 per cent of the patients two or three attacks followed before the fever ceased. In only one case of quartan ague, despite large doses of the salt, the fever recurred for six periods, gradually diminishing in intensity, and then yielded to it. It is equally successful in all forms of ague, but it is a curious fact that the cases in which it failed to cure were all of the tertian variety. Dr. Clark has also employed this agent in the treatment of twenty-five cases of malarial neuralgia of various nerves, six cases of malarial headache, and one of malarial colic. In all these cases it cured completely and speedily. In addition to being cheaper and given in smaller doses, picrate of ammonium does not produce the unpleasant effects that quinine does, such as headache, deafness, tinnitus, etc. Nor does it, like quinine, disorder the digestion or cause nausea as quinine does in India.—*Chem. and Drugg.*

German Export of Ether and Picric Acid.—Last year 375,700 kg. of ether and collodion were exported by Germany, against 1885, 704,400 kg. Of this total France was the recipient last year of 158,000 kg., against 1885, only 3,700 kg., or an increase of 154,300 kg. Picric acid was exported during 1886, having a weight of 53,300 kg., against the previous year 32,700 kg., or an increase of 20,600 kg. For January this year the export of ether shows an increase of 17,800 kg., and that of picric acid about 7,400 kg. This increase is mainly due to the developed export trade with France in these materials, as in February 22,800 kg. ether and 10,000 kg. picric acid were exported to that country, against January, 1886, only 300 kg. of ether; the export of picric acid being *nil.*—*Kuhlow's Ger. Trade Rev.*

"THE English papers print a report concerning the alleged purchase, on a scale of unprecedented magnitude, of picric acid and sulphuric ether by the French Government. The substances in question are said to be employed in the manufacture of that mysterious explosive known as mélénite, the secret of which is supposed to be in possession of the French War Office. The German daily press has recently confirmed the truth of the reported purchases so far as Germany is concerned, and one paper even named the well-known Berlin "Chemische Fabrik, vormals E. Schering," as being the principal contractor for sulphuric ether. It was added that the managers of the Berlin works, as soon as they became aware of the purpose for which the chemical was required, communicated with the German Government, in order to ascertain whether the continued sale of sulphuric ether to the French War Office was consistent with German interests.

To this communication, it is said, the reply was received that no objection whatever would be raised to the sale of the ether."—*Dingl. Pol. J.*

NEW THERMO-REGULATORS.

GEORGE W. A. KAHLBAUM'S thermo-regulator consists of of a U-shaped glass-tube, one leg being only half the the length of the other. The longer leg has a lateral tube fused to it, through which the gas passes to the burner. At the orifice of the longer leg, a brass neck is affixed, through which passes a bent glass-tube *CD*, obliquely cut off below, and bearing on one side a ratchet attachment, which engages the teeth of the cog *K*, the latter being revolvable by means of the milled screw visible behind it. At the lower end of the ratchet, a cork is attached, which is raised or lowered with the tube, and which must slide readily up and down, while being at the same time gas-tight. A little below the cork, the tube *CD* has a small hole to permit a little of the gas to pass through the burner even when the main supply is cut off. The neck of the smaller end is slightly flared outwards, and a rubber ring passed around it, which serves as a washer for a metallic cap applied outside and provided with a lid which can be screwed down hermetically. When the apparatus is to be prepared for use, it is charged with mercury to within about four centimeters of the orifice of the shorter leg. Next a column, about two centimeters high, of a volatile liquid of such a nature that it will be converted into vapor at the temperature to be obtained by the apparatus, is poured on top of the mercury. The tube is now inclined so as to bring the contents of the short leg to the very orifice, and a cork, about two centimeters long, so pushed down upon it, which is then cut off square at the top. The brass cap is then screwed down tight.

C is connected with the gas supply, and *E* with the burner under the apparatus. As soon as the generated temperature has converted the inclosed volatile liquid into vapor, the latter depresses the mercury on its own, and raises it on the other side, until it shuts off the supply of gas at *CD*. By regulating the height of the latter tube, any desired temperature may be obtained and maintained. The outer tube *A* has a mark *ab* scratched upon it. This serves to adjust the tube *CD* to any given or predetermined height, and therefore to any previously determined temperature.—*Ber. d. Deutsch. Chem. Ges.*, 1886, 2,860.

Improvements in Morphiometrical Assay.

IN a lengthy paper "On the Analysis of Opium," Mr. Charles M. Stillwell gives a detailed description of an improved method, of which we give only the salient points of the process, excepting the chief improvement proposed by the author, namely, the new "Washing Solutions," which we give in full:

1. *Sampling.*—Take a portion of every tenth lump in a case.

2. *Preparing the Sample.*—Mix the small samples thoroughly, either by kneading or rolling; or by drying with previous estimation of the water.

3. *Extraction of the Morphine.*—Weigh off about 10 Gm., noting the exact weight taken. Treat this with 100 C.c. of water in a suitable vessel, macerate, let stand one night, filter and wash, making two portions of the filtrate. Evaporate on a water-bath, first the weaker portion, about 70 C.c. of the solution, then add the stronger portion, and evaporate all to 25 C.c. Add 5 C.c. of alcohol, and stir until all is dissolved.

4. *Precipitation of the Morphine.*—Transfer the solution to a suitable flask, add 5 C.c. more of alcohol, and mix. Then add 30 C.c. of ether (spec. grav. 0.728 at 15.5° C.= 60° F.), and mix. Then add 4 C.c. of a 10-per-cent water of ammonia, spec. gr. 0.960. Shake violently until the crystals form, and let stand over night.

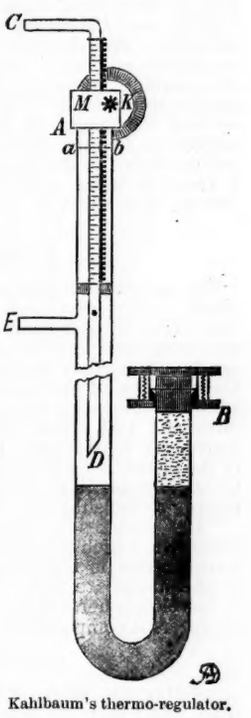
5. *Filtration of the Morphine.*—Filter off, first, the ethereal solution, and wash well with ether. Then filter the aqueous solution and wash, first, with "*morphiated spirit*," then with "*morphiated water*," then with "morphiated spirit," and finally with ether. Dry at 100° C. (212° F.) and weigh, using balanced papers.

6. *Purification of the Morphine.*—Treat the impure precipitate with hot alcohol until all the morphine is dissolved. Wash thoroughly with hot alcohol, dry, and weigh the insoluble residue. Subtract this from the first weight of the precipitate to get the amount of morphine present.

7. *Statement of Results.*—Give the percentage of moisture present at 100° C. (212° F.), and of morphine, both on the wet and dry basis, in terms of crystallized morphine: $C_{17}H_{19}NO_3H_2O$ [mol. w. 303] dried at 100° C.

In the detailed execution of that portion of the process which involves the washing of the precipitated morphine, several difficulties are met with. The amount of ether recommended by Dr. Squibb is so small that in some cases where the filtration proceeds with great difficulty, much of the ethereal solution is evaporated from the edges of the filter paper, leaving its contents behind, and these are not thoroughly washed out by the subsequent treatment. The amount of water also is, in the opinion of Mr. Stillwell, too small to allow of perfect washing. We shall now quote his own words:

"In order to obviate these difficulties, I have adopted a plan for which I am indebted to a paper published by E. F. Teschemacher, F.C.S., etc., in the *Chemical News*, Vol. xxxv., p. 47. The first solution, which he calls "*Morphiated Spirit*," is made by mixing one part of ammonia solution, sp. gr. 0.880, with twenty parts of alcohol, and digesting in this mixture for several days a large excess of morphia. The clear solution will contain 0.33 per cent of morphia. The second solution, called "*Morphiated Water*," is water saturated by long shaking with morphia. The filtered solution contains 0.04 per cent morphia. By washing with these solutions, the extractive matter is completely removed from the filter-paper, and crystals of morphia. I prefer to use balanced filter-papers of 4½ inches diameter. The solution is run through one of these, and, by means of the thorough washing with the solutions above described, the two papers are left, at the end of the operation, ready for weighing against each other, as at first. I pour off the ethereal stratum through the filter, as above described, and then wash several times with 10 C.c. of ether, rinsing the flask around without shaking, and letting settle for a few minutes. Even if a small amount of the ethereal residue is left upon the paper by evaporation, it is immaterial, as in the subsequent treatment this is removed. A small siphon is advantageously used to draw off the ethereal solution from the Erlenmeyer flask, but if an attempt be made to siphon off the ethereal washings, it will be found that the bubbles formed in the ether collect in the tube of the siphon and prevent its action, so that it is better to wash by decantation. If some of the aqueous solution pass into the filter with the ether it is of no importance. The washing with ether is followed, first, by a thorough washing with the "*Morphiated Spirit*," thus removing all the coloring matter and resin soluble in this menstruum, and then by a thorough washing with the "*Morphiated Water*," until the filtrate comes through colorless, and the paper shows by its color that all the extractive matter is removed. By the use of the Erlenmeyer flask it is possible to remove with the rubber-tipped rod all the crystals from the flask, so that no drying and weighing of the flask is needed. After the washing with the "*Morphiated Water*" the filter is left to drain for a few minutes in the funnel, and two washings of 10 C.c. each with the "*Morphiated Spirit*" are given. This removes the bulk of the water from the paper and crystals. Let drain for a few minutes, keeping the funnel covered with a watch glass, and then wash twice with 10 C.c. each time of ether. This will remove any narcotine which may have been left from the evaporation of the ethereal solution at the beginning of the operation. The paper and contents are thus left in a condition to be rapidly dried. Let the filter and its contents stand exposed for a few minutes, and then dry at 100 C.c. and weigh. Twenty minutes or half an hour's drying is usually sufficient.



Kahlbaum's thermo-regulator.

"On account of the removal of the water, it is possible to dry the filter and its contents in a short time at a much lower temperature than 100° C.; but as it is easier to employ this heat, and no decomposition of the morphia crystals occurs, I use it. A precipitate of morphia crystals was dried for two hours at 60° C., yielding a weight of 1.306 grammes. It was further dried for three hours at the same heat, and then weighed 1.305 grammes; still further dried for two hours at 100° C., it became 1.308 grammes.

"The mother-liquor, together with the first washings of ether and "*Morphiated Spirit*," is put in a flask, 3 C.c. of ammonia added, and the corked flask is set aside over night, in order to see if a further crystalline precipitate of morphia occur. If the solution is left exposed in an open beaker, amorphous flakes will settle out, consisting chiefly of resinous matter, very different from the heavy crystalline deposit of morphia.

"Having thus obtained the weight of the crystalline precipitate, it is still necessary to further purify it before the final calculation is made for the per cent. The precipitate of morphia obtained by Dr. Squibb's process contains insoluble matter, resinous and other organic matters, soluble in alcohol, and meconate of lime, the latter constituting about 25 per cent of the impurities present. The average amount of the impurities present in the crystals obtained by his process is 8 per cent of the weight of the crystals. The meconate of lime extracted by the acid solution of the opium is retained in solution until the ad-

dition of the ammonia, when it is precipitated with the crystals of morphia, and remains with them until the final weighing. The resinous and other organic matters, insoluble in water but soluble in alcohol, are not thoroughly removed with the limited washing given in his process, and no provision is made for their subsequent removal, The thorough washing with "*Morphiated Spirit*," which I employ taking out these substances, and the subsequent treatment with "*Morphiated Water*" removes those insoluble in alcohol, so that the chief impurity present in the crystals of morphia obtained by my modification of the process is meconate of lime, together with some organic matters insoluble in water and alcohol.

"*Purification of the Precipitate.*—After drying and weighing the crystals, they are carefully rubbed or brushed from the filter, the latter being then placed in a funnel and preserved, with its balanced paper, for future use. The precipitate is treated in a small beaker with hot alcohol of 95 per cent. This dissolves all the morphia, leaving the insoluble organic matter and meconate of lime. The hot alcoholic solution is run through the filter which contained the morphia, the small portion of the crystals remaining on the paper being thus drenched with hot alcohol, and the morphia dissolved. This treatment with hot alcohol is continued until all the morphia is dissolved. This extraction with alcohol may be done in a Soxhlet's apparatus, if desired. The filter is then dried, with its balanced paper, and the amount of residue obtained. This is subtracted from the original weight of the precipitate, and the remainder calculated into the per cent of morphia. The alcoholic solutions of morphia are placed in a bottle and left to deposit the excess of morphia; and the alcohol, saturated with morphia, is used for the preparation of the "*Morphiated Spirit*," as above described. Meconate of lime I found to be perfectly insoluble in boiling alcohol. A long treatment with this solvent failed to dissolve enough meconate of lime to give a trace of color with ferric salts."—After *Am. Chem. Journ.*, Vol. 8, No. 5.

On Quinine Tests.

THE question of quinine tests, which has recently been made a very prominent one by Dr. de Vrij, who showed that even the best commercial kinds of sulphate of quinine contained much more of secondary alkaloids (chiefly cinchonidine) than had been suspected, is likely to engage the attention of pharmacists and chemists for some time to come. Not long ago, we published de Vrij's improved chromate test. This has, since then, been slightly improved by Schlickum. Instead of quoting the full paper of the latter, we will give the salient portions of a paper by Dr. Vulpius in the *Pharm. Centralhalle* (1887, No. 4) referring to the subject. He says:

"Hesse makes the interesting revelation that the solid substance which is seen to separate when a sample of impure quinine is tested by means of Kerner's, or Hesse's, or the bisulphate test, is *not pure cinchonidine*, as seems to have been heretofore assumed, but that these crystals represent a compound having the formula:

$$C_{20}H_{24}N_2O.2C_{19}H_{22}N_2O,$$

consisting, therefore, of 2 molecules, or 64.5% of cinchonidine, and 1 mol., or 35.5% of quinine. If these statements are correct, as may be assumed from the reputation of the author, it follows that the quantitative estimations of impurity in commercial quinines, which have hitherto been made, based upon the above tests, have been one-third too large. In consequence of this, it is not to be wondered at that Hesse does not attribute great weight to the recently published reports on the percentage of impurity in quinine. Nevertheless, he pleads for the acceptance of a quantity of cinchonidine up to four per cent from an economical standpoint, which is, however, not acceptable either to the pharmacopœia or to pharmacists, particularly as there are several German makers of purer quinine at but slightly advanced cost.

De Vrij recently defended his lately published *chromate* test (see our February number, page 28) against objections raised by others. At the same time, he introduced a modification calculated to prevent the small quantities of quinine hydrate, which sometimes separate upon the concentration of the mother-liquor from the chromate, from being mistaken for cinchonidine. The modification is simply this, that the mother-liquid is not to be concentrated at all, but merely mixed with a drop of solution of soda, and then warmed in a flask on the water-bath. If the sulphate of quinine contains over 4% of cinchonidine, the liquid becomes turbid already at 40° C. (104° F.); if 2% are present, at 25° C. (77° F.). But if the liquid is free from cinchonidine, it remains clear even at a boiling temperature.

Schlickum has succeeded in modifying De Vrij's method so that it may be executed with ease and dispatch. As finally settled (in *Pharm. Zeit.*, No. 3), it is as follows:

De Vrij's Chromate Test Modified by Schlickum.

Place 0.5 Gm. of the sulphate of quinine in a test-tube with 10 Gm. of water, and heat to boiling. Add 0.15 Gm. of powdered chromate of potassium, and set the test-tube aside during four hours, repeatedly agitating. Then filter and add to the filtrate *one* drop of a solution of soda [spec. gr. 1.160], which should not cause the separation of any visible solid matter, either at once or in the course of one hour. [Schlickum points out that while a shorter time may be sufficient to cause the separation of crystalline chromate of quinine, so far as is at all possible, it is yet advisable to allow four hours to elapse before filtering. A longer time may perhaps be still more advantageous.]

On examining artificially prepared mixtures of sulphate of quinine with one per cent of the sulphates of quinidine, cinchonine, and cinchonidine by the above-mentioned method, I at once obtained a strong turbidity upon the addition of the soda in the case of quinidine. With cinchonine, I obtained a notable amount of crystalline flakes after a few minutes. With cinchonidine, however, it required about an hour to produce small and rather indistinctly visible flakes, which became more easily distinguishable on raising the amount of cinchonidine to two per cent. The execution of this test is so easy that it is, under all circumstances, applicable to the detection of quinidine and cinchonine. As to cinchonidine, a parallel experiment should be made with chemically pure sulphate of quinine. If both samples are placed in the proper light, any resulting turbidity in the suspected sample may be easily detected.

De Vrij himself, however, has already published a similar modification of his test. He triturates 2 Gm. of the sulphate of quinine to be tested with gradual addition of 200 Gm. of water, transfers the mixture to a glass vessel, adds a solution of 0.5 Gm. pure chromate of potassium in 20 Gm. of water, shakes energetically during five minutes, then transfers the whole to a filter and, having added *one* drop of soda solution to the filtrate, heats the latter to boiling. On cooling, the liquid will remain clear if the quinine was pure; but if other alkaloids were present, the liquid will be more or less turbid. Mixtures of sulphate of quinine with 2 per cent of cinchonidine sulphate, when thus tested, and though cooled to 0° C., yielded satisfactory results only when cinchonine was present. In the case of quinidine and cinchonidine, however, the results were doubtful. Consequently, the above modification appears to be made at the sacrifice of exactness.

After all, I am inclined to prefer the *oxalate* method, based on a similar principle, and devised by Schaefer. Shimoyama already utilized the different solubility of the oxalates of the cinchona alkaloids for the purpose of determining them quantitatively. According to him the several oxalates require for solution:

Oxalate of Quinine	1,030	parts of	water
" " Cinchonidine	250	"	"
" " Quinidine	150	"	"
" " Cinchonine	100	"	"

at ordinary temperature.

Comparing with these figures the rate of solubility of the alkaloids themselves [quinine requires less water for solution than its oxalate; the other alkaloids require more than their respective oxalates], it follows that a *saturated* solution of oxalate of quinine, when treated with soda, will not precipitate any quinine. On the other hand, soda produces such a precipitate already in *unsaturated* solutions of the other alkaloids. Hence, if a solution of sulphate of quinine is converted into oxalate by precipitation with an alkali oxalate, the filtrate will not be rendered turbid unless it contains some of the other alkaloids.

The test is performed, according to Schaefer, as follows:

Schaefer's Oxalate Test.—Boil 2 Gm. of the sulphate of quinine with 55 Gm. of water in a tared flask for a few minutes, then add a solution of 0.5 Gm. of neutral crystallized potassium oxalate in 5 Gm. of water, add enough water to bring the total weight to 62.5 Gm., set aside on a water-bath at 20° C. (68° F.) for half an hour, repeatedly shaking, transfer to a filter, and mix 10 Gm. of the filtrate with 1 drop of solution of soda. Neither a cloudiness nor any other separation should take place.

On testing a sample of pure quinine according to this method, the liquid remained absolutely clear, but if only *one* per cent of any *of the other three alkaloids* was present, it became at once *strongly turbid* after addition of the soda.

No one will probably want to use a test, for practical purposes, which will show *less* than *one* per cent of other alkaloids. On the other hand, the test may be made less exacting either by taking less of the quinine salt, or by using more water.

The value of this test lies in the fact that it reveals *all* of the secondary alkaloids with nearly the same certainty, and even when present in minute quantities. It has the disadvantage that it requires the use of a watch and thermometer, and a new reagent, viz., potassium oxalate.

Both of the methods above described are also directly applicable to hydrochlorate of quinine.

For the benefit of those who wish to employ the oxalate method, it may be added, that, after precipitating with potassium oxalate, it is best to cool the contents of the flask by a stream of water at 20° C. applied to the latter before placing it on the water-bath at 20° C., as this will prevent the latter from acquiring a higher temperature from the flask.

Dr. Vulpius concludes his paper with the remark that, in his opinion, the problem of testing commercial sulphate

of quinine for its purity has been practically solved. We might add, however, that, in our judgment, the last word has not yet been spoken, there being already several prominent authorities at work to improve the existing methods still further.

Note on Norwegian Cod-Liver Oil.

THE *Chem. and Drugg.*, in an editorial on this season's crop of Norwegian cod-liver oil, says:

Statistics respecting the amount of oil yielded by this season's catch are somewhat varying, but we have every reason to believe that the figures given in our last trade report were as nearly as possible correct. These figures comprised the oil produced until February 12th, but they referred only to the fishing in Lofoden proper, and did not include that at Vesteraalen, Nordmöre, and Söndmöre. Including the latter localities, the total yield up to March 3d is computed at 1,650 barrels (39,600 gallons), against 6,100 barrels (146,000 gallons) up till March 5th, 1886. Another report places the yield very slightly lower; but, taking even the large figure as the correct one, it is clear that the fishing during that part of the season which has now passed has scarcely yielded one-fourth of that of the corresponding part of the previous year. The weather in the Lofoden has not been very cold this season, but extremely stormy. On many days it has been impossible for the boats to put to sea; on other occasions, gear and net have suffered severe damage, and the violence of the gale has now and then been such as to destroy several of the small buildings in which certain operations connected with oil-refining are carried on. Telegrams received in London this week report a continuance of unfavorable weather.

Towards the end of March, the cod commence to make their appearance further northwards on the Finmarken coast, and the Lofoden fishing generally declines a fortnight or so afterwards, while the Finmarken season lasts until well in May or even June.

The Finmarken yield is decidedly below that of the Lofoden, so far as quality is concerned, the fish becoming leaner as the season advances, while, as a rule, the quantity produced in Lofoden is also larger.

Detection of Hydrocyanic Acid.

TRACES of hydrocyanic acid may be detected in the following manner:

The liquid supposed to contain the acid is treated with a few drops of potassium-nitrate solution, from two to four drops of ferrous-sulphate solution, and so much diluted sulphuric acid, until the yellow-brown color of the basic ferric salt formed is just changed into a light-yellow. The liquid is then heated to boiling, and afterwards allowed to cool. The iron in excess is precipitated with a few drops of ammonia, filtered, and the filtrate tested with one or two drops of dilute, colorless ammonium sulphide. If hydrocyanic acid was present in the original solution, the liquid at once assumes a violet color which changes in a few minutes into blue, then green, and finally into yellow. Very minute traces of hydrocyanic acid produce a bluish-green color, which soon changes into greenish-yellow. 0.000032 Gms. hydrocyanic acid in 10 C.c. of water can be thus detected.—*Jour. Soc. Chem. Ind.* and *Chem. and Drugg.*

Salicin.

THE editor of the *Chemist and Druggist* (Feb. 5th), commenting upon the recent sudden advance in the price of salicin, which appears to be entirely due to speculation, makes the following remarks upon the sources it is obtained from:

"The supply of willow bark is limited, but is practically sufficient for all requirements. Though obtainable from more than twenty species of Salix, there are only a few which yield it in sufficiently large quantity for manufacturers' purposes. *Salix alba*, *Salix Caprea*, and *Salix pupurea* are the principal species operated upon, while certain kinds of poplar bark also yield sufficient salicin to be worth working. The bark is obtained principally from Germany and America. Although it grows abundantly in this country, most of the bark which has been tried, even of species which generally yield salicin, has been found useless. For example, the bark of several trees of *Salix purpurea* which grew near a chemical factory was tried, but it yielded nothing. The process of manufacture is very simple. The bark is placed in large cylindrical iron tanks into which steam is passed; this condensing forms a concentrated infusion, which is drawn off and treated with lime to remove tannin and coloring matter. The clear liquor is then passed to the crystallizing vats, the crystalline deposit afterwards collected, placed in calico bag, and subjected to hydraulic pressure, whereby residual coloring matter is pressed out. The semi-dried matter is afterwards re-crystallized. Some time ago an attempt was made to utilize the spent bark for paper-making, the fibre being tough and of considerable length; but whether the attempt proved successful or not has not transpired. The proposal was not due to the low price of salicin, but to the unmanageableness of the waste bark, which manufacturers have either to burn or cart away at considerable expense."

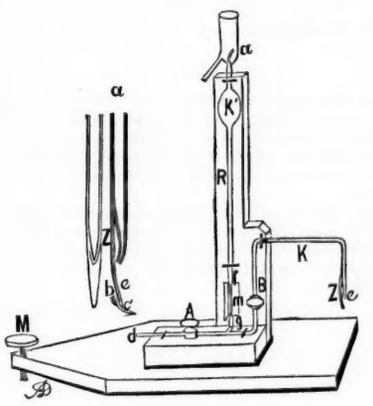
AN ACCURATE PIPETTE WITHOUT GRADUATION.

WHEN the same volume of a liquid is to be measured off very frequently, or when an apparatus is to be set up which delivers always the same volume of a certain reagent, the ungraduated pipette, designed by A. Beutell and F. W. Dafert, will render excellent service.

That part of the apparatus which constitutes the pipette proper is the twice bent tube *K*, from *B* to *Z*. Its orifice at *e* has a small glass-rod fused to the outside (see enlarged cut at side) which serves to draw out the last drop when the contents are discharged. This tube *K* may be chosen of any desired size or volume, as its exact volume may be easily determined by measuring the contents flowing from it. Or, it may be made of a size to deliver a fixed volume of liquid at a given temperature.

The method of charging the apparatus is the following:

A reservoir containing the liquid, and standing at an elevated place, is connected with the orifice *d*. It will be seen, by following this tube, that there is a stop-cock at *A*, and that it communicates not only with the pipette tube *K*, but also with an upright tube K, ending in a small orifice within a cup-shaped receptacle *A*. It may be at once



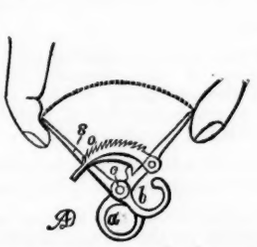
Dafert's burette.

mentioned that the capacity of the pipette *K*, from the orifice *e* to the stop-cock *B*, is exactly the same as that of the tube *K*, from its upper orifice to a point precisely on a level with the upper edge of stop-cock *B*.

The first thing to do is to fill the apparatus full of liquid. *B* being kept closed, *A* is opened so that liquid may fill the tube *K* until it overflows into the cup. *A* is then closed. A beaker is now held close under the orifice *e*, stop-cock *B* opened, and the liquid in *K* will thereupon fall and enter the tube *K*, partly passing out. The whole operation is repeated until the pipette *K* is completely filled.

The apparatus is now ready for constant use. It is only necessary to place a suitable vessel under the orifice *e*, and to open the stop-cock *B*, when the contents of the pipette will flow into the former. *B* is then closed, and *A* opened. This causes the upright tube *K* to be recharged. *A* is closed, and the contents of the pipette may now again be discharged as before, and so on. It has been found that by using this device a greater accuracy is attained than by actual measuring with graduated pipettes.

The apparatus will be patented, and will be made by C. Gerhardt, of Bonn.



A NEW PINCH-COCK FOR RUBBER TUBING.

THE clamp or pinch-cock here shown is operated by two fingers grasping the ends or handles of the two hooks or rings *a* and *b*, which are joined together like shears, and which are pressed together until the tube which passes through the round openings *a* or *b* is sufficiently compressed. The toothed spring *o*, engaging a corresponding projection in the handle *s*, holds the clamp in position. It only requires a touch of the projecting part of the spring to release the pressure. (Germ. pat. 37,667.)

Glycerin as an Aid in Drying.

IT has been found that if printing paper is dampened with a dilute solution of glycerin in water, and it be then printed upon, the ink upon it will dry very much more rapidly than when the glycerin is omitted.

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EDITORIAL.

A SCHEME has lately come to our notice for starting a "pharmaceutical company" among physicians, and advantage has been taken of the existence of a certain number of physicians in every community, who will indorse anything that will bring their names before the public, to give the scheme character. The circular which is issued as a means for promoting subscriptions to its stock contains such very remarkable statements that we think it worth while to reproduce some of them. The objects of the company are, in the first instance, stated to be:

"The manufacture of reliable chemical and pharmaceutical preparations, whose qualities for purity, full strength, and correct weight shall be *guaranteed by the supervision of an advisory board of physicians appointed to examine and analyze its products.*"

We have italicized a portion of the above statement for the purpose of drawing attention to its absurdity as contrasted with the names of physicians published as indorsers of the project, not one of whom would be competent to serve on such a committee or analyze a pharmaceutical preparation.

"To afford physicians an opportunity of sharing in the legitimate profits of the manufacture by becoming stockholders of the company. This opportunity will be given only to a selected list of physicians, who may subscribe for a limited number of shares each."

(Care has been taken to select physicians, whose names, when published, would help to advertise the scheme.)

"It is unnecessary to do more than mention the adulteration that exists in the manufacture of official and other pharmaceutical preparations, the injuries that result from the use of adulterated compounds, and the difficulties with which physicians have to contend in their efforts to obtain results reasonably to be expected from their prescriptions. For example, 2 grains of sulphate quinine pills manufactured by firms of supposed reliability have been found upon analysis to contain not more than 1½ grains of the alkaloid; and fluid extracts 25% below official requirements have been extensively sold. It has been claimed that competition among manufacturers has been the cause of the adulteration, and that this competition would prevent manufacture by the . . . company at a reasonable profit; but that this is not so may be seen from the limited list of official and other pharmaceutical preparations, of which the following is an approximate estimate of the sale and profit therefrom for the year 1886;

25,000,000 comp. carthartic pills,	estimated profit,		50%.
25,000,000 quinine pills,	"	"	50%.
8,000,000 rhubarb "	"	"	100%.
8,000,000 iron "	"	"	100%.
1,000,000 lbs. fluid extracts,	"	"	25%.

	DOZENS.	NET PRICE.	ESTIMATED PROFIT.
Cod-liver Oil.....	100,000	$6.00 per doz.	100 to 150%
" Emulsion.....	100,000	8.00 "	100 " 130%
Malt Extract.....	60,000	5.00 "	100 " 120%
Beef, Iron, and Wine.....	70,000	8.80 "	100 " 130%
Syrup of Hypophosphites.	70,000	8.50 "	100 " 135%

This is exclusive of manufacture by retail druggists."

The source from whence the above statistics are derived is not mentioned, but we think our readers will agree with us that it was probaby the fertile brain of some stock-broker.

"The manufacture of these articles seems to show a broad magin of profit, and Dun & Co., and Bradstreet & Co., Mercantile Credit Agents, have not reported in the last three years the failure of a single corporation manufacturing these or other pharmaceutical preparations."

We had no idea that manufacturing pharmaceuticals is so lucrative, and we are quite sure that many of our readers will share in our surprise.

"Whatever untoward effects competition may entail may be avoided by this company by its method of organization, and the results to be reasonably expected from the interest taken in it by consumers of its products.

"It is proposed to accept as members only physicians of known standing throughout the country, who from their own experience can themselves use and recommend to others its products."

In other words, the stockholders are also to serve as a sort of professional *claque*, and we shall by-and-by observe that these eminent men will take occasion to remark, in any contribution to medical literature, that such and such things, "made by the well-known . . . company were used with very satisfactory, indeed, with quite unusually good results," and that "it will be worth the trouble of those who have occasion to treat similar cases, to insist that the apothecary shall dispense, for such cases, the products of no other manufacturer." This, we will see, is likely to increase the dividend to be derived from his stock.

"An association of this character will tend to prevent the introduction and distribution of impure preparations, and to establish reasonable prices for such goods as may be included in its manufacture."

We all appreciate the truth of this, for it is well known that whenever a person becomes a stockholder in any concern, his chief concern lies in having the consumer's interests carefully looked after, and that the dividends he may personally derive from his stock is a matter of secondary importance.

"Manufacturers of impure preparations will be forced to adopt and maintain the standard of the United States Pharmacopœia, as the medical profession at large will prescribe only the best of medicines obtainable."

All of which is mere buncombe.

"The success of this plan as applied to other lines of manufacture needs no demonstration, and we are not without experience in its successful adaptation in the proposed direction. An eight months' experiment was made by our manager, the result of which was entirely satisfactory, although instituted upon the smallest possible basis and without the moral and pecuniary support which is now secured to this corporation. The physicians' patronage is the source of the manufacturers' profit, as through the physicians' indorsement alone can any official or other pharmaceutical preparation come into general use."

And we are sorry to be obliged to say that it is a very stupid fellow who can't get doctors enough to indorse the virtues of any nostrum, hobby, or scheme, providing he gives them an opportunity to see their names published.

"We propose that the physician as a practitioner shall reap the benefit of a purer manufacture; as a consumer shall have a voice in the manufacture of medicines which he constantly prescribes."

(No mention is made, however, of the mode by which his voice shall exert itself.)

"And as an investor shall receive a reasonable financial return for his investment."

The method of organization is somewhat similar to that pursued in mining ventures, viz., 600 shares at $50 each constitutes Class A. This is usually held by the promoters of the scheme, and costs them the preliminary expenses—chiefly desk-room in some office, and the publication of circulars. Those who *promote* such schemes usually term this "getting in on the bottom," or "on the floor,"

Then comes Class B, composed of those who are *allowed* to come in and pay par value for their stock. In the present instance Class B seems to be expected to furnish the advertising also, but the value of the stock in Class B is only $20,000, distributed through many individuals, so that in any case the unknown but presumably very limited number of holders of Class A will be able to run the machine in any event. Altogether the scheme appears to be working very well in the sense that its stock has been taken by a considerable number of doctors whose social status makes their connection valuable; who have lucrative practices and money to invest, and who have neither time nor ability to look very closely into the management of a manufacturing business, the details of which they are entirely unfamiliar with.

The truth is, that the medical profession generally, and in cities especially, are far from being competent judges of the purity or general characteristics of the remedies employed by them. Their knowledge of medicines is largely theoretical, and they depend almost entirely upon books and journals for it, rarely, if ever, seeing the drug itself. A prescription for some substance, based upon what has been read in some journal or book, is written; the pharmacist to whom it goes incorporates the substance with others, and in nine cases out of ten the doctor never sees the product and could not give a critical opinion of its merits if he should see it. This is exactly the sort of a man who is ready to accept the statements of some shrewd fellow who will flatter his vanity and promise a good return for money invested, and unless the original cost is too great, he will never take the trouble to investigate the subject further than to look over the names of those who have been similarly *roped in*.

Such a scheme may be managed at the outset by good and honest men, and for a time be reasonably successful, but in the event of financial and business embarrassments the control of the corporation may pass into the hands of less scrupulous managers, and the corporate name and reputation acquired may be used to promote the sale of pharmaceutical products of a very inferior quality. The value of the indorsements by eminent physicians still remains as great, and can be used quite as successfully to advertise the degenerate goods as they were at the outset, and the harmful results can only be estimated by some one as gifted as the person who is authority for the statement that 25,000,000 pills of quinine and the same number of compound cathartics were manufactured in 1886, at a net profit of fifty per cent.

The Southern District Pharmaceutical Association (South Dakota) will meet in Sioux Falls Sept. 6th, 1887. The officers are D. S. White, of Flandreau; U. S. Brattch, of Parker, Secretary, and L. T. Dunning, of Sioux Falls, Treasurer and Local Secretary.

The Fifteenth Annual Meeting of the American Public Health Association will be held at Memphis, Tenn., on the 8th to 11th of November next.

Kentucky Pharmaceutical Association.—The tenth annual convention will occur on the 18th, 19th, and 20th of May at Louisville. Edward Goebel, the Local Secretary, reminds those who contemplate an exhibition of products that the meeting of the State Medical Association at Paducah, on the 17th of June, affords another opportunity for displaying wares which will enable them to have additional publicity at a slightly increased expense.

Chicago College of Pharmacy.—At the annual meeting of Chicago College of Pharmacy, held March 8th, 1887, the following officers were elected. President, George Buck; Vice-President, W. K. Forsyth; Auditor, W. A. Puchner; Treasurer, Judson S. Jacobus; Secretary, D. H. Galloway.

Trustees.—Albert E. Ebert, Fred. M. Schmidt, Boch Uhlendorf, Andrew Scherer, J. C. Borchardt, August Jacobson, F. M. Goodman, Herbert T. Clark, Henry Biroth, and Arthur A. Winter.

The regular summer session opened March 14th, 1887.

Massachusetts Pharmaceutical Association.—The sixth annual meeting will be held in Holyoke, June 7th and 8th, 1887. The local committee have engaged halls in the Windsor Hotel for the meetings devoted to the exhibits; space may be had in the exhibition without charge. Applications for space will be filed in order of receipt. Material for tables and men to place them will be furnished at a nominal expense.

CHAS. E. BARDWELL, *Local Secretary.*

HOLYOKE, MASS., April 13th, 1887.

Pennsylvania Pharmaceutical Association.—The tenth annual meeting of the association will be held on June 14th next in the Philadelphia College of Pharmacy. The members of the college have very kindly offered their rooms for the meeting and use of the association. They will also, on Wednesday evening, June 15th, give a reception to the members and ladies at the college.

An excursion on the Delaware River is contemplated for Thursday, June 16th. A large attendance and a delightful meeting are looked for.

J. A. MILLER, *Secretary.*

HARRISBURG, April 18th, 1887.

The Alumni of the St. Louis College of Pharmacy have a very wide-awake organization, of which W. C. Bolen is President; W. H. Gallenkamp and W. H. Motz, Vice-Presidents; H. M. Whelpley, Recording Secretary; F. F. Witting, Corresponding Secretary; C. Geitner, Treasurer, and A. Weber, Registrar.

Fort Worth, Texas, has a recently-organized Association of Druggists, of which E. D. Oesch is president; E. M. Wells, vice-president; J. G. Browning, secretary, and N. E. Grammer, treasurer. A committee was chosen to provide for the entertainment of the State Association on the 10th inst.

Alumni of the Cincinnati College of Pharmacy.—We are indebted to Mr. Wetterstroem for the following particulars respecting the annual meeting of this association which occurred on the 30th of March: The initiation fee was reduced from $5.00 to $2.00 and an annual tax of $1.00 imposed on each member. The meetings are to be held quarterly. The following officers and committees were chosen: President, A. W. Bain; Vice-President, E. W. Stahlhuth; Recording Secretary, Herman Serodine; Corresponding Secretary, Albert Wetterstroem; Treasurer, Emil Heun; Executive Board, C. P. Rendigo, C. M. Greve. C. W. Smedley, A. Meininger, Louis Sauer, C. Kaefer; Delegates to A. P. A., C. M. Greve, Julius Eichberg, A. Wetterstroem, E. W. Stahlhuth, Otto Plath; Alternates, C. A. Fieber, C. Ashbrook, F. Kallmayer, B. H. Overbeck, A. C. Heinemann; Committee on Social Entertainments, H. Serodine, C. M. Greve, Julius Eichberg; Committee on Queries, Louis Sauer, A. Meininger, F. Kinzbach; Committee on Publication, E. Heun, C. Fennel, L. Klager, E. Pohlmeier, J. H. Feemster. The latter committee are to report upon the practicability of a quarterly journal under the auspices of the society.

Philadelphia College of Pharmacy.—The annual commencement was held March 18th and the degree of Graduate in Pharmacy was awarded to 148 students. The degree of Master in Pharmacy was conferred upon Alfred B. Taylor and William Webb, of Philadelphia; Charles A. Heinitsh, of Lancaster, Penn.; C. Lewis Diehl, of Louisville, Ky.; and William T. Wenzell, of San Francisco. A number of prizes were given, O. V. Cassady, of Alliance, Ohio, and C. S. Bendurant, of St. Louis, receiving each the gold medal of the "Proctor Prize." A. L. Beck, of Warren, Pa., and E. G. Siebert, of Chambersburg, Pa., dividing the "Henry C. Lea Prize" of $100. The latter received also Prof. Maisch's "Materia Medica Prize" of a microscope. E. Breneiser, of Reading, Pa., received the gold medal of the Remington "Pharmacy Prize." A. L. Beck received the Stadtler "Chemistry Prize" (an analytical balance) and the "Maris Prize" (a prescription balance). The Trimble "Analytical Prize," of $25, went to E. S. Beshore, of Bethel, Pa. E. R. Stitt, of North Carolina, received the "John M. Maisch Prize" of $20, and J. G. Patton, of Youngstown, Ohio, the "Borre Operative Prize."

Alumni Association of the Philadelphia College of Pharmacy.—At the 23d annual meeting, held March 17th, the President, Mr. Wallace Proctor, delivered an address. The Secretary reported an increase by 132 new members, 14 deaths, and a total membership of 1,224. The Treasurer reported a balance of $143.32. David W. Ross was elected President, C. B. Lowe and B. F. Scholl, Vice-Presidents; W. E. Krensen, Secretary; W. N. Stern, Corresp. Sec'y, and E. C. Jones, Treasurer. W. Proctor, J. W. England, and H. Trimble were elected to the Executive Board. Thomas D. McElhenie, of Brooklyn, delivered the oration; and addresses for the class of '87 were delivered by W. A. Smith, of Philadelphia, E. J. Hardfield, of Dodge City, Kansas, and W. C. Helper, of Reading, Pa. O. V. Cassady, of Alliance, Ohio, received the gold medal "Alumni Prize." The "Quiz Master Prize"—a silver medal—went to E. S. Beshore, of Bethel, Pa. The seven prize certificates to members of the graduating class attaining the highest averages were given as follows:

Materia Medica—William A. Partee, of Nashville, Tenn.
Pharmacy—Addison I. Beck, Sharon, Pa.
Chemistry—C. A. Bondurant, of St. Louis, Mo.
General Pharmacy—Edgar Breneiser, of Reading, Pa.
Operative Pharmacy—John G. Patton, Youngstown, Ohio.
Analytical Chemistry—Frank W. Droelle, Detroit, Mich.

Specimens—Bennett I. Taylor, of Zanesville, Ohio, who also received a prize for the best collection of indigenous plants; Paul Leuschner, of Detroit, Mich., was awarded a prize certificate, also a testimonial certificate for the Junior receiving the highest general average of the Class to William Crutcher, of Richmond, Ky. The programme was interspersed with college songs by a glee club of senior students organized during the past winter.

A RECENT letter from Mr. J. A. Miller, secretary of Pennsylvania Pharmaceutical Association, says that the proposed Pharmacy Act had passed the lower house of the Legislature by a large majority, and that its friends are very hopeful of success.

The Effect of "Shaving" upon Cultivated Cinchona.

FOR some time past, a new method of improving the yield of alkaloids in cultivated cinchonas has been employed in the East Indian plantations. This is to some extent taking the place of the "mossing" process introduced by McIvor. The latter consisted in the removal of a number of narrow longitudinal strips of the bark, the intermediate strips being left intact, while the denuded portions are covered with moss, under which the bark will become renewed. The "renewed" bark is found to be much richer in alkaloids than the old. When it has grown sufficiently, the untouched portions are stripped off, and this is done alternately, as long as the tree will permit.

Regarding the new process of shaving, the following extracts from the official report of Mr. Lawson, Director of the Government Cinchona plantations, Nilgiris, for 1885–1886, will give some interesting information:

Renewal by Shaving.—Shaving cinchona trees has been for some years a method of harvesting bark which in some districts works better than that of stripping and mossing. The cellular and richer portion of the bark is removed in this way, and the fibrous portion is left. The bark thus treated thickens again, and the shavings taken from it are found to be richer still in alkaloids. The analysis of some succirubra shavings, taken from trees grown in the Ouchterbourg Valley, will show to what an extent trees may be improved by this method. The renewals had been taken after intervals of twelve months; the experiment, therefore, has lasted over three years.

	Quinine.	Other Alkaloids.	Total.
Original bark	1.35	5.87	7.22
Once renewed	2.46	4.22	6.68
Twice renewed	3.60	3.99	7.59
Thrice renewed	3.87	3.71	7.58

The increase in quinine during the first and second year by renewing is most satisfactory; the increase in the third year is not so prominent, but the bark is good, and indicates that shaving for at least four years might be permitted. The trees upon which these experiments were made were six years old when the original bark was taken. If at this comparatively early age they are not injured by shaving, and renew their bark so well, it is not desirable to wait for the trees to become more matured.

When trees are allowed to grow until they are twelve years of age and then shaved, the renewal sets in more slowly and the resulting bark does not compare more favorably with the original bark than if the trees operated upon had been half that age. This may be instanced by quoting some more analyses. Last December some interesting samples were sent by the manager of the Glenrock Company, South-East Wynaad, consisting of some natural and renewed shavings of suecirubra taken from trees of six and twelve years of age.

The following is the analysis of four of the samples:

	Sulphate Quinine.	Total.
Red bark, six years natural	1.34	5.00
" " renewed, two years	2.54	6.95
" " twelve years	2.42	7.41
" " renewed, two years	2.71	7.01

. . . . . .

I have had very few opportunities of observing the effect of shaving on pure Ledger barks, containing little, if any, alkaloid besides quinine, but it appears that hybrid Ledgers of the broad-leaved variety holding cinchonine are capable of great improvement by the shaving process, as the following renewals of eleven months will show, compared with the natural bark of six-year-old trees:

	Sulphate Quinine.	Total.
Ledger bark, narrow leaf, natural, 1885	4.09	5.97
" " " " renewed, 1886	6.62	8.49
" " broad leaf, natural, 1885	2.90	6.61
" " " " renewed, 1886	5.19	8.51

The sulphate of quinine in the narrow-leaved Ledger had increased sixty-two per cent and in the broad-leaved Ledger seventy-nine per cent. The greater increase in the latter variety is due to the presence of other alkaloids, which appear to develop quinine in the growth of the tree.

Shaving old trees has certainly not had a beneficial effect, from some trials made on government estates. Both red and crown trees from sixteen to twenty-one years of age cannot well bear the removal of the bark in this way, and the renewal takes place slowly and is impoverished instead of being enriched. A crown bark was taken from Dodabetta, aged twenty, and shaved. The shavings gave 3.66 sulphate of quinine; after six months, some renewed shavings were taken and found to yield only 1.85 per cent sulphate of quinine, the bark then was commencing to decay, and the tree has since died.

Sham Glycerin.—A correspondent of the *Canadian Pharmaceutical Journal* says that Prof. Lajorex, of Reims, has analyzed a low-priced article sold as "Glycerine argenté," having a s.g. of 1.26, neutral, slightly yellow and apparently of excellent quality, although to the taste it is bitter-sweet and quite unlike glycerin. It was found to consist of a saturated solution of Epsom salt, with about 160 grammes of glucose per liter. [? ED. AM. DRUG.]

A Ton of Coal.

IN a paper read before the Royal Institution of Great Britain, Prof. H. E. Roscoe gave the following interesting statistics of the products obtained from one ton of Lancashire coal. Distilled in the gas retort, the coal yields:

(1.) 10,000 cu. ft. of illuminating gas.
(2.) 20 to 25 gallons of ammoniacal liquor, 5° Tw., equivalent to 30 lbs. ammonium sulphate.
(3.) 12 gallons or 139.2 lbs. gas tar, sp. gr. 1.16.
(4.) 13 hundredweight of coke.

Form the twelve gallons of gas tar may be obtained:

(1.) 1.1 lbs. Benzene.	(6.) 63 lbs. Naphthalene.
(2.) 0.9 lb. Toluene.	(7.) 17 lbs. Creasote.
(3.) 1.5 lb. Phenol.	(8.) 14 lbs. Heavy Oil.
(4.) 2.44 lbs. Light Naphtha.	(9.) 0.46 lbs. Anthracene.
(5.) 2.4 lbs. Heavy Naphtha.	(10.) 69.6 lbs. Pitch.

From the benzene may be obtained 1.23 methyl violet, sufficient to dye 1.009 yds. of flannel a full violet. Otherwise the benzene and toluene together may be made to yield 0.623 lbs. magenta, sufficient to dye 500 yds. of flannel a full shade. The phenol will yield 1.2 lbs. aurin, which will dye 120 yds. of flannel a full orange. The naphthalene may yield either 7.11 lbs. vermilline scarlet sufficient to dye 2,560 yds. of flannel a full scarlet, or 9.5 lbs. of naphthol yellow, sufficient to dye 3,800 yds. of flannel a full yellow. From the anthracene may be obtained 2.25 lbs. of alizarin, 20 per cent, sufficient to dye 255 yds. of cotton a full turkey red.

The following, according to Prof. Roscoe, are the principal dyes derived from gas tar:

1. From benzene, the aniline series; (a). *Yellows*, orange-yellow or acid yellow, metanil yellow, auramine; (b). *Brown*, brown, Y.; (c). *Orange*, diphenylamine or Blackley orange, chrysoidine, Y, orange I,* orange II,* orange III (Helianthine), orange IV.; (d). *Red*, safranin; (e). *Blues*, diphenylamine blue, methylene blue, indulin (Campbelline); (f). *Violets*, methyl violet, 6 B, methyl violet R.; (g). *Green*, malachite green, brilliant green, acid green.

2. From Toluene. (a). *Brown*, Bismarck brown, R.; (b). *Orange*, chrysoidine, R.; (c). *Reds*, Magenta, R., Magenta, B.; (d). *Blues*, Blackley blue, R., Blackley blue I., alkali blue, R., alkali blue, 6 B.

3. From Phenol. (a). *Yellow*, picric acid; (b). *Orange*, aurin; (c). *Red*, eosin, safrosin, cyanosine, rose bengal, phloxin, erythrosin.

4. From Naphthalene. (a). *Yellow*, dinitrophenol (Manchester yellow), naphthol yellow; (b). *Red*, Bordeaux, vermilline scarlet, R., vermilline scarlet, R. R. R., vermilline scarlet, B.B.B., rocellin,* new red, Biebrich scarlet, crocein scarlet; (c). *Blue*, Victoria blue 1,* and Victoria blue 5.*

5. From Anthracene. (a). *Yellow*, alizarin, anthrapurpurin; (b). *Brown*, flavopurpurin.

6. From Xylene and Naphthaline, xylidene scarlet; from cumene and naphthalene, cumidine scarlet. —*Pharm. Era.*

Detection of Cotton-seed Oil in Olive Oil.

PROF. E. BECCHI, chemist of the Italian Customs Department, some years ago worked out a test for olive oil which was first published in this Journal (NEW REM., 1883, p. 314), depending on the action of nitrate of silver in contact with the oil. This test has been somewhat modified from time to time. At present it is used in the following manner, and it is held to be absolutely reliable by the author. Two test solutions are required: the first prepared by dissolving one gramme silver nitrate in 200 C.c. alcohol (98 per cent), and adding 40 C.c. ether. The filtered liquid should exhibit a slightly acid reaction. The second solution consists of pure amyl alcohol containing 15 per cent rape oil. The test is performed by placing 10 C.c. of the suspected oil in a small flask, and adding 1 C.c. of the silver nitrate solution and 12 C.c. of the mixture of amyl alcohol and rape oil. The contents of the flask are then shaken up well, and warmed for a quarter to half an hour in a water-bath. If the liquid becomes dark in color, cotton-seed oil is present. To check the result, the test may be repeated, using a mixture of 8 C.c. pure olive oil and 2 C.c. cotton-seed oil.

Improved Battery Cell.

MR. H. V. WARREN recommends the replacement of the customary solution for a bichromate battery with a concentrated solution of perchloride of iron containing a little free acid, and a layer of bromine at the bottom of the bottle or jar. The zinc reduces the ferric salt to a ferrous condition, and this is in turn reoxydized by the bromine, so that a fairly constant battery of much greater power than the ordinary bichromate battery is obtained. Such cells are said to give a current suitable for lighting, electrolysis, or other purposes, which do not diminish to any material extent for fully two and a half hours, and even then a brisk current of chlorine, or the addition of a little hypochlorite of sodium or calcium (bleaching powder) restores them almost to their original state.—*Brit. and Col. Drugg.*

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* Into these Naphthalene also enters.

On the Relationship of Berberine to the Opium Alkaloids.

In our last March number (page 50) we gave an account of the results of an investigation by Freund and Will, on the nature of hydrastine, in which the close relationship between this alkaloid and some of the opium alkaloids, particularly narcotine, is demonstrated.

Entirely independently of these investigators, Prof. Ernst Schmidt, of Jena (*Arch. d. Pharm.*, 1887, Feb.), has carried on a study of *berberine*, which alkaloid is closely allied to hydrastine. The results thus far obtained are quite remarkable, and still more interesting ones are promised to be published in a short time.

According to Schmidt, it appears that no previous experimenter has ever had any pure berberine under his hands. He found almost insurmountable difficulties in the way of getting this alkaloid in a definite, crystalline condition. But he announces that his recent efforts have been more successful. Among other interesting matters, he reports having obtained a crystalline compound consisting of one molecule each of *berberine* and *chloroform*, which remained undecomposed when dried at 212° F.

On oxidizing berberine with permanganate of potassium in alkaline solution, there is obtained, as chief product, an acid which has been identified by Prof. Schmidt and Mr. Schilbach as hemipinic acid, previously obtained by the similar oxidation of narcotine. In fact, an exhaustive examination of hemipinic acid prepared from both alkaloids has conclusively shown that they are absolutely alike. This fact, therefore, proves beyond a doubt that there is a very close relationship between the alkaloids of opium and perhaps of all Papaveraceæ with berberine and its allies.

One point, however, requires clearing up, before further conclusions can be based on this fact. It is necessary to understand the nature of berberine itself. If no absolutely pure berberine has so far been used as a starting point for this chemical transmutation, it is necessary to show whether the pure alkaloid, when obtained, will undergo the same change, or whether it is not accompanied by some substance which has a share in the reaction. In some respects, berberine acts like a very obstinate organic *salt*, rather than as an alkaloid.

The Chemistry of Tyrotoxicon.

Prof. V. C. Vaughan, of Ann Arbor, who some time since published his discovery of the poisonous substance which has given rise to serious illness in persons who have eaten certain articles of food—such as ice-cream, custards, cheese, etc.—has pursued the investigation of this poison, and in *Medical News* of April 2d states that Mr. F. G. Novie and he have about satisfied themselves that *tyrotoxicon* (as he called this poison) and *diazobenzol* are identical in both chemical and toxical effects. Diazobenzol is stated to be a transition product of putrefaction, and itself undergoes rapid decomposition. The cause of this particular form of decomposition appears to be a germ or micro-organism which is most readily developed in a limited supply or entire absence of air.

Detection of Oil of Sesame in Olive Oil.

Schaedler points out that the test for the presence of oil of sesame by means of hydrochloric acid and sugar has lately been brought into undeserved discredit, through the ignorance of those who looked for the change of color in the oil, instead of in the acid.

When olive oil is suspected to be adulterated with oil of sesame, proceed as follows:

Mix 1 C.c. of the oil with 1 C.c. of pure hydrochloric acid of spec. gr. 1.125 and 1 Gm. of cane sugar, and agitate briskly. Had it been pure oil of sesame, the acid layer would assume already after fifteen minutes a rose-red color which would become violet after twenty-five minutes, and in the course of the next five hours would become as dark as a solution of iodine in bisulphide of carbon. Any other oil but oil of sesame produces a change of color (but not rose-red or violet) only after three-quarters to one hour. Any admixture of oil of sesame will be indicated by the rose-red or violet tint the acid acquires during the first twenty-five minutes.

As small a quantity as one-quarter per cent is said to be still recognizable.—After *Rep. f. anal. Chem.*

Powdered Ergot.

Holdermann recommends to improve the keeping qualities of powdered ergot by sharply drying it for some time after it has been exhausted by ether. [This method of extraction by ether is prescribed by the Germ. Pharm.] He found that this additional drying causes it to lose several additional per cents of water. The proposition is strongly indorsed by the *Pharm. Zeitung.*

On our part, we will readily grant that the keeping qualities of the ergot are thereby improved, but whether the therapeutic properties of the ergot are not seriously injured by heat is another question. In this country, where so much experience has been collected about ergot and its preparations, it is regarded as detrimental to its medicinal effects to apply heat to it.

Fatty Matters in Filtering Paper.

P. Vieth has recently drawn attention to a fact which has heretofore been overlooked, and which may be the cause of errors in quantitative determinations. He found that many, even of the best filtering papers contained substances which are soluble in ether or other solvents of fats. From certain papers he obtained an amount of ethereal extract which amounted to 0.314, 0.295, 0.231, and 0.161 per cent of the weight of the paper. This amount of fatty matter (or whatever it may be) would therefore increase the true amount of extractive obtained from a substance which is extracted by the solvent upon the filter.—After *Chem. Centralbl.*

It follows that it is not enough to exhaust the filters completely by acids and water, but it is also necessary to exhaust them with ether (or other similar solvent) if it is to be subsequently washed therewith.

The Adulteration of Oils.

From a paper on this subject printed in the *Chem. News* (March 25th), we take the following abstract.

The author having lately seen a sensational article going the rounds of the press in which it was stated that a large proportion of American lard is adulterated with cotton-seed oil, he has decided to publish a new method of testing oils by means of a reagent.

He vindicates the character of the American lard (or lard-oil) by stating that he has examined it and found it to be certainly not adulterated with cotton-seed oil, if at all.

According to the author, all oils that have a tendency to thicken are acted upon by chloride of sulphur, and it is by means of this substance, when diluted with bisulphide of carbon or petroleum ether, that one class of oils may be separated from the other.

Sesame oil, which is more easily thickened, or as the author expresses it, more readily "vulcanizable," than cotton-seed oil, is more easily detected by chloride of sulphur than the latter. Oil of sesame is sometimes reported to be unobtainable in the market. This may have some connection with the practice of adultering olive oil.

When oils are acted upon by chloride of sulphur, they are converted into solid, easily pulverizable masses, from which the unconverted oil may be removed by bisulphide of carbon. On evaporating this solvent, the amount of unaltered oil is obtained.

Castor oil, which is not regarded as a drying oil, is violently affected by chloride of sulphur. In such cases, the reagent should be more largely diluted with bisulphide of carbon.

The practical application of the reagent to the detection of adulterations in oils will be reported in a subsequent paper by the author.

Our object in announcing this has been, to draw attention to the new reagent proposed by the author.

Volumetric Determination of Alkaloidal Salts.

Professor Plugge (*Arch. d. Pharm.*) points out that litmus and phenolphtalein in combination with volumetric solutions of alkalies, may be used to determine the quantity of acid combined with alkaloids, and in some cases the quantity of the alkaloid itself.

In the salts of the weak opium alkaloids, viz., narcotine, papaverine, and narceine, the acid may be determined volumetrically, with litmus or phenolphtalein, as if no alkaloid were present at all. The end-reaction is very sharp.

In the salts of all alkaloids, except those of the volatile bases coniine and nicotine, and under certain circumstances, those of brucine, morphine, and thebaine, the amount of acid may likewise be determined volumetrically, phenolphtalein being used as indicator.

In the solution of salts of alkaloids (with exception of those of the weaker opium bases), which contain *free* acid, the latter may be determined volumetrically with litmus as indicator, and the combined acid afterwards with phenolphtalein as indicator. The difference between these two determinations shows the amount of acid directly in combination with the alkaloid, and hence, the quantity of the alkaloid itself, if this is known to be pure or free from others.

How to Cut a Bottle.—A correspondent of the *Chem. and Drugg.*, in describing how to make a percolator, mentions the following method of cutting a bottle:

"I was first shown how to do it by an ingenious mechanic, and have since seen the same published in Spons' 'Workshop Receipts.' Put the bottle on a level foundation and fill up with oil (I use linseed oil, being able to use it in paint-making afterwards) as far as you wish the line of separation to be. Next get a rod of iron as large as possible, but small enough to go into the mouth of the bottle. Make the iron almost white hot and dip it into the oil. In a very short time a crack will be heard when the iron can be taken out, and the bottle will be found as neatly cut as if with a diamond. Should the bottle be very thick, and the crack not heard in a minute or so, a dash of cold water outside will settle the business."

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 1,913.—**Iodoform Pills** (M. E.).

There is no difficulty in making pills containing iodoform, any of the ordinary pill excipients fully answering the purpose, as they do not affect the chemical constitution of the substance. The only difficulty about them is the disguising of the odor. This may be accomplished, however, by combining with the iodoform some volatile oil, such as peppermint, wintergreen, cloves, etc., or a little cumarin (about 1 grain for every 30 of iodoform); or perhaps better still, by using finely-ground coffee as a diluent of the iodoform. This has been repeatedly recommended for this purpose, quite recently also by Mr. Wm. Duncan at a meeting of the Edinburgh Chemists' Assistants' Association.

No. 1,914.—**German Patent Gum Arabic** (Several inquirers).

This article has been largely advertised, and at the present time, when genuine gum arabic is threatening to disappear from the market, it will undoubtedly have a good sale wherever it can be used. But *it is inadmissible for medical or prescription purposes*, as will be seen from a description of its mode of preparation, which is given as follows:

Twenty parts of powdered sugar are boiled with 7 parts of fresh milk, and this is then mixed with 50 parts of solution of silicate of soda containing 36% of the salt. The mixture is cooled to 122° F., and poured into tin boxes, where granular masses will gradually separate out, which look very much like pieces of gum arabic. This substance may be used as a size for woven fabrics, and also as a base for mucilage, but it is altogether unsuitable for medical use. As the price of genuine gum arabic is constantly advancing, it will be well to be on the lookout for attempts that may be made to adulterate the gum or its powder with some of the artificial product.

Genuine gum arabic leaves, on combustion, not more than 4 per cent of ash, consisting of the carbonates of calcium, magnesium, and potassium. The readiest method of detecting adulteration with the artificial gum will be the determination of the ash quantitatively as well as qualitatively. Another method is to test with Fehling's solution. Pure gum arabic does not reduce it; at least, though there may be a bluish flocculent precipitate, there is never any separation of red cuprous oxide within a few hours after the test-tube is set aside. The artificial gum, however, reduces Fehling's solution copiously and instantly.

No. 1,915.—**Manufacture of Albumen on the Large Scale** (J. B. T.).

Egg-albumen can be prepared for the market, on a large scale, only in such countries where eggs are raised in larger quantities than are consumed as food, or where it is found cheaper to work them up into marketable products than to sell them as eggs. This condition of things does not exist in this country so far as we are aware. Probably all the egg-albumen of the market is imported, and most of it comes from Eastern Europe.

The only cheap source of albumen that is readily accessible anywhere is blood. Blood-albumen generally answers the same purposes as the other, but is usually not as nice and clean as it might be. It may be prepared best by the new process of Thorsten Nordenfelt (this is, however, patented).

The blood is first deprived of fibrin by whipping or brisk stirring, and is then filtered. If handsome and almost colorless albumen is desired, every 100 kilos of blood are mixed with 100 to 1,000 grammes of sugar, previously dissolved in a little of the blood, and with a like quantity of a pure volatile oil [we presume, one which does not injure the final product by objectionable odor]. The object of the sugar, which is in so small a quantity as not to affect the commercial purity of the product, is to facilitate the separation of the serum and to prevent its decomposition. [We would try and prevent the latter by saturating the blood and the subsequent liquids derived from it with chloroform, as this will effectually protect such organic liquids for a long time.] The volatile oil makes the serum clear and almost colorless. It is dissipated during the final drying.

Thus prepared, the blood is run into a rapidly revolving centrifugal machine, constructed on the plan of those now used for making butter. The heavy blood-corpuscles collect at the outside, the lighter serum near the inside. Both are drawn off through separate channels. If the serum is not perfectly pure, it is mixed with more volatile oil, and stirred for about 15 minutes. Finally, the serum is concentrated *in vacuo*, and the residual mass dried in flat vessels under a good draft, at a temperature never exceeding 122° F.

No. 1,916.—**Standard Works on Manufacture of Starch, Glucose, etc.** (B. B.).

The most complete work on this subject which we are acquainted with, is vol. V. of the Encyclopedia of Agricultural Manufactures, edited by Dr. K. Birnbaum, and published by Vieweg, in Braunschweig. The general title of the cyclopedia is: *Lehrbuch der rationellen Praxis (Encyklopädie) der landwirthschaftlichen Gewerbe.* Vol. V. of this has the title: "Die Stärkefabrikation in Verbindung mit der Dextrin- und Traubenzuckerfabrikation." Von L. v. Wagner, 2d edit., 14 marks.

This encyclopedia is in fourteen volumes, profusely illustrated, and treats of brewing, distilling, wine making, the manufacture of sugar, starch, etc., vinegar, wood-vinegar, acetic acid, bread, etc., etc.

No. 1,917.—**Parchment-pointed Filters** (J. W. S.).

In our volume for 1885, p. 108, we gave an account of a method proposed by E. E. H. Francis, for toughening filter paper so as to render it able to resist pressure. All that is necessary is to dip the filter to the desired depth into nitric acid of the spec. grav. 1.420, and then to wash with water until every trace of acid is removed. If the filter is to be used for rapid filtration with the filter pump, all that is necessary is to parchmentize the point. The effect of the treatment with acid of the above-mentioned strength is not to increase the weight of the paper, as is the case when pyroxylin is formed; but the weight is diminished, and some of the inorganic constituents are removed, so that the ash is diminished. The well-known firm of Schleicher & Schüll, of Düren, Germany, have put filters with parchmentized point on the market, which may be obtained through dealers in chemical apparatus.

No. 1,918.—**Silicate of Soda** (Medicus).

Considerable trouble has lately been experienced by some of our medical friends in obtaining silicate of sodium suitable for making silicate splints. The viscid, sticky form in which this is usually met with in the market is very unsuitable for the purpose. On attempting to make it more liquid by the addition of water, great difficulty is met with, since it will not mix with water readily, being like a dough or a mass of stringy glue which unites but slowly with the water. Besides, the very act of solution causes a portion of the salt to decompose, granular silica being separated.

The best kind of silicate of sodium for surgical purposes is a solution, directly prepared by the manufacturers, having a specific gravity of about 1.360. This is manufactured, for instance, by L. Feuchtwanger & Co., 191 Fulton street, New York. It may be obtained through the wholesale drug houses.

No. 1,919.—**Boehringer's Quinine Test** ("Alkaloid," Boston).

This a test recently recommended by C. F. Boehringer & Sons, of Mannheim, for testing the purity of commercial sulphate of quinine. It is based upon the results obtained by previous investigators, chiefly Shimoyama, Schaefer, and Vulpius, regarding which we have reported elsewhere already. It is claimed for this test that it will show the presence even of the smallest quantity of cinchonine and quinidine, and also any amount of cinchonidine over 1 per cent. The test is as follows:

Dissolve 2 Gm. of the crystallized sulphate of quinine in 60 C.c. of distilled water in a tared flask at a boiling temperature. Then add 0.5 Gm. of neutral, crystallized oxalate of potassium dissolved in 5 C.c. of distilled water. Add enough water to make the contents of the flask weigh 67.5 Gm.

Next place the flask for half an hour into a water-bath at 20° C. (68° F.) [having previously cooled the flask to this temperature], then filter and add to 10 C.c. of the filtrate one drop of officinal solution of soda (Germ. Pharm., containing 10% caustic soda).

If a turbidity or a precipitate makes its appearance, the salt contains 1 per cent or more of cinchonidine.

The oxalate of potassium suitable for this test is prepared by neutralizing pure oxalic acid in aqueous solution with pure potassa, so that the liquid has only a faintly alkaline reaction. The solution is concentrated, allowed to crystallize, and the crystals dried with the aid of heat.

No. 1,920.—**Phenol-Mercury** (M. D.).

We have had no experience with this, and only know that it was recommended some time ago as a prompt remedy in syphilis. According to an article in the *Pharm. Zeit.* (Jan. 15th), it is prepared in the following manner:

Prepare aqueous solutions of 132 parts of phenol-potassium and 271 parts of mercuric chloride, and mix them. Wash the orange-red precipitate until the addition of iodide of potassium no longer produces a reddish color (due to the formation of mercuric iodide).

The requisite phenol-potassium is prepared by mixing 94 parts of crystallized carbolic acid with 56 parts of fused caustic potassa, evaporating to dryness, and freeing the crystalline needles, which form on cooling, from adhering moisture by drying upon porous plates. [If the fused caustic potassa of the market were perfectly pure, 56 parts would correspond to its formula KOH. But as it is often quite impure, due allowance must be made for this, or it must be specially purified.—Ed. Am. Drugg.] The result-

ing mercury compound is stated to have the composition $C_6H_5.OHg.OH$, but this requires confirmation. It is administered in pills, in doses of 0.02 Gm. (about ⅓ grain).

No. 1,921.—**Bromide of Magnesium** (M. D.).

It was announced last year (*Am. Journ. Pharm.*, Nov., and elsewhere) that bromide of magnesium was used in the Philadelphia Hospital, in place of the bromide of the alkalies, in the treatment of nervous diseases. This salt is prepared extemporaneously by dissolving magnesium carbonate to saturation in dilute hydrobromic acid, so that a tablespoonful of the solution contains 8 grains of bromide of magnesium. The liquid is clear, has a slightly yellow color, no odor, the spec. gr. 1.122, and is not precipitated by an equal volume of alcohol.

No. 1,922.—**Permanent Solution of Starch as a Reagent.**

Gelatinized starch, such as is directed to be prepared from 1 part of starch and 200 parts of water in the appendix of the U. S. Ph., cannot be kept long, and it is usually necessary, when the reagent is required, to prepare it freshly. Of course, it must be used *cold*. There are, however, several methods by which a permanent solution of starch may be prepared. One of the best is that which combines the preservative quality of glycerin with that of common salt (Topf's method; *Zeitsch. Anal. Chem.*, 1887, 138). It is as follows:

Heat 6 parts of starch for half an hour with 100 parts of concentrated glycerin to 190° C. (374° F.); then dilute it with twice its volume of a 10 to 20 per cent solution of chloride of sodium, and filter. It will remain permanent.

No. 1,923.—**Softening Fish-Bones** (S. W. T.).

The correspondent wishes to know the process employed for softening the bones of sardines and other fish previous to canning, so that they can be eaten.

We have been informed that this is done by heat under pressure, but as we have no knowledge on the matter ourselves, we would like to refer this query to our readers for answer. Certain brands of sardines have had the principal bones removed by a skilful operator before they are packed, and our correspondent may have supposed that it was accomplished by some chemical process. It is reasonable to infer that any process which would soften the bony and cartilaginous structures of fish would also destroy the characteristic properties of the flesh.

No. 1,924.—**Tincture of Liquorice Root** ("Extracts").

This inquirer wants to know how he can make tincture of liquorice root, of which he has to make a considerable number of gallons every week, so that it will not become cloudy when mixed with water; or how he may render it clear after it has become cloudy.

The cause of the cloudiness is the sweet principle of the liquorice root, namely glycyrrhizin. This is present in the root in combination with calcium and ammonium. As long as it is completely combined with a base, it is soluble both in alcohol and in water, but the ammonium compound particularly has a tendency to decomposition, owing to a gradual loss of ammonia. Now *free* glycyrrhizin is soluble in alcohol (which is, of course, present in the tincture originally made), and the stronger the alcohol is the more soluble it is; but it is only very little soluble in water. Hence on diluting the tincture containing *free* glycyrrhizin with water, this principle is partly precipitated in form of a turbidity which slowly settles to the bottom. It would not do to filter this out, because it is the most important constituent of the liquorice. It is, on the contrary, necessary to bring it into solution again, and this is readily accomplished by using just enough ammonia to prevent the liquid from distinctly smelling of it. What remains undissolved then may be rejected. It is even advisable to add about 3 per cent of water of ammonia to the diluted alcohol with which the liquorice root is to be exhausted. No heat should be used, but cold percolation. The root should not be "crushed," but in powder. Some add to the menstruum a small proportion of glycerin; but it is not necessary in our experience.

No. 1,925.—**Syrup of Hypophosphites with Iron** (X.).

"I have trouble in making syrup of hypophosphites with iron, U. S. Ph. The lactate of iron precipitates from the syrup. Will you please give the reason for this and state how it may be prevented."

Our correspondent has purchased the lactate of iron sold by one of our most prominent chemical houses. But we must tell him that no lactate of iron is made in this country, all lactic acid and lactates being imported from Germany. German manufacturers generally carry two or three kinds, the best being designated as "crystallized in crusts." But this is not what is usually purchased by dealers abroad. It costs nearly double as much as the common pulverulent lactate. But it is the only kind which ought to be used. You will have no difficulty in getting it through your wholesale house. Ask for "lactate of iron, crystallized, in crusts, in original bottle of manufacturer" and you will get what you want. When lactate of iron is made, that which crystallizes in the original solution, on being removed, is quickly dried and preserves its character as a *ferrous* salt. The mother-liquid finally remaining, on being evaporated to dryness, yields an amorphous powdery mass in which already a good deal of ferric or basic salt may be developed. At all events it is not as soluble as the other, usually leaving some insoluble residue.

The solution of the lactate of iron may be much facilitated and rendered permanent by taking an amount of citrate of potassium equal to that of the iron salt and some water, and warming the two substances together.

Lactate of iron has, however, been found to impart to the syrup not only a slightly mawkish taste, but it has also been stated to be the cause of the darkening of the syrup. For this reason it has been recommended to replace it with a corresponding quantity of tasteless tincture of iron equivalent to it.

No. 1,926.—**Incomplete Prescription** (L. D. N.).

This query came too late for the last number. The inquirer had a prescription for

℞ Yerba Santa..... ... . ℥ vi.

Sig. Teaspoonful every two hours.

We are asked to state how we would have filled this prescription.

As the prescriber is stated by our correspondent to have been a young doctor, probably with limited experience only, at least in the knowledge of the newer drugs, we have not the least doubt that he meant to prescribe the fluid extract. Probably he had no very definite idea what "Yerba Santa" was; perhaps he thought it was a liquid originally. That the leaves of mountain-balm or Eriodictyon glutinosum cannot be well taken by the teaspoonful is plain; and as the only commonly used pharmaceutical preparation is the fluid extract, this must have been meant.

No. 1,927.—**Preservation of Natural Flowers** (W. M. H.).

Some years ago a patent was granted in Germany upon a process for preserving flowers, which was described by us in our vol. for 1884, page 45, as follows: The respective parts of the plant are coated with a solution of shellac or resin until they are perfectly dry. The moisture completely escapes after some time through the fine fissures of the coating. Finally, the coating is removed by the cautious use of alcohol, whereupon the organs will present their original sharp outline.

This process, however, is by no means new, as it has been practised, with various modifications, for many years previously. For instance, in Percy's Recept-Lexikon (Nürnberg, 1856), we find the following: "Take sandarac 1¼ oz., mastic ½ oz., camphor ⅒ oz., reduce them to a coarse powder and place them into a long-necked flask. Pour on 1½ pints of alcohol and digest at a moderate heat (avoiding loss of alcohol) and frequently agitating during the digestion. Then allow it to become clear by settling (or filter). With this solution coat the flowers or other parts of plants that are to be preserved, using a brush for the purpose. This will result in their retaining their natural color, and it will also protect them against insects."

It will be seen that this is the same process, in principle, as that patented in Germany.

Another method highly recommended is to dip the flowers in perfectly transparent solution of gum arabic in water, about 4 oz. to the pint, to which about ½ oz. of glycerin is added with advantage. They are then allowed to drain a few minutes, held downwards, and then set upright into a vase or bottle. As the mucilage dries it forms a coating which preserves the color. But even if the slightest portion has remained uncoated, the result will be a failure.

Another method has been given by the *Pharm. Journal* a number of years ago. It is thus described: "A vessel with a movable cover is provided, and having removed the cover from it, a piece of metallic gauze of moderate fineness is fixed over it, and the cover replaced. A quantity of fine sand is then taken, sufficient to fill the vessel and passed through a sieve into an iron pot, where it is heated with the addition of a small quantity of stearin (probably paraffin would be better, or a mixture of about 10 parts of paraffin and 1 part of naphthalin) carefully stirred so as to thoroughly mix the ingredients. The quantity of stearin to be added is at the rate of ½ part to 100 parts of sand. Care must be taken not to add too much, as it would sink to the bottom and injure the flowers. The vessel with the cover on and the gauze beneath it is then turned upside down, and the bottom being removed, the flowers to be operated on are carefully placed on the gauze and the sand gently poured in so as to cover the flowers entirely, the leaves being thus prevented from touching each other. The vessel is then put in a hot place, such for instance as the top of a baker's oven, where it is left for 48 hours. The flowers thus become dried, and they retain their natural colors. The vessel still remaining bottom upwards, the lid is taken off, and the sand runs away through the gauze, leaving the flowers uninjured."

No. 1,928.—**Solution of Indigo** (R.).

R. has made a solution of indigo in sulphuric acid, and has obtained a bluish-green liquid. He wants to know what it is.

We suspect the trouble was both with the indigo and

with the acid. The very best Bengal or Caracas indigo should be used, and fuming or Nordhausen sulphuric acid should be employed for dissolving the indigo. The latter must be added in *powder* to the acid, a little at a time, and no heat must be allowed to be developed. On finally diluting with water and filtering through glass-wool or asbestos (either of which should have been previously treated with sulphuric acid and washed) a pure deep-blue liquid will be obtained.

The queries asked by our correspondent respecting proprietary remedies and formulas for "cures" cannot be answered by us.

No. 1,929.—**Rose Sachet** (R.).

Piesse gives the following:

Rose leaves, 1 lb.; santal wood, ground, ½ lb.; oil of rose, ¼ oz.

We think, however, that the quantity of the oil of rose is a mistake, a smaller amount being amply sufficient.

If the so-called "White Rose" flavor is wanted, this may be compounded as follows:

Alcoholic extract from French rose pomatum (1 lb. to pint), 8 fl. oz. Triple extract of rose (3 oz. of oil of rose dissolved in 1 gall. of alcohol), 4 fl. oz. Extract of violets (1 lb. violet pomade to pint), 2 fl. oz. Extract of musk (2 oz. musk to 1 gall. alcohol) 1 fl. oz.

No. 1,930.—**Acetate of Lead** (R.).

We are asked to state what causes the whitish turbidity when commercial acetate of lead is dissolved in water.

Soluble acetates, when exposed to air, are liable to lose some acetic acid, which is not as tenaciously combined as other acids would be. In fact, the slow elimination of acetic acid is, in these cases, clearly noticeable even to the sense of smell. Naturally, as some of the acetic acid leaves the salt, there is either formed a basic acetate, or in consequence of the presence of carbonic acid in the air, some carbonate of lead is formed. It is this latter, chiefly, which cause the white turbidity when acetate of lead, which has undergone this change, is dissolved in water. The turbidity may, however, be at once removed by cautiously adding acetic acid, which will redissolve the suspended matter.

No. 1,931.—**Mistura Camphoræ** (R.).

According to our correspondent, there has been some wrangling between a customer and two different drug stores about the correct preparation of a physician's prescription containing "Mist. Camphoræ." One of the pharmaceutists put up the mixture according to Parrish, and the other used camphor water. We are now asked to decide who was correct.

Well, to a certain extent they were both correct, but the one who dispensed Camphor Water has probably the driftiest arguments in his favor. In the London, Edinburgh, and Dublin Pharm. "Mistura Camphoræ" was the regular title of camphor water. The British Pharm. changed it to Aqua Camphoræ, giving "Mistura Camphoræ" as a synonym. Older physicians, and those who have come from any portion of the British empire, still often use the old name. Hence it is justifiable to put up Aqua Camphoræ under the circumstances.

As there are other camphor mixtures besides Parrish's, it may be doubted whether the latter or any other of these special mixtures ought to be dispensed, unless the name "Parrish," "Hope," etc., is specially added in the prescription. Here, however, it will much depend upon who the prescriber is, whose customs or habits will often be well known to the pharmacists who are in the habit of putting up his prescriptions.

We would state in conclusion that we would probably in *all* cases, where we had no *special* reason to suppose that Parrish's mixture was demanded, put up "Aqua Camphoræ."

No. 1,932.—**Syrup of Dover's Powder** (New Haven).

This correspondent refers to a formula for syrup of Dover's Powder, published some time ago in another journal, in which sulphate of potassium is directed as one of the ingredients, which does not, however, all stay in solution; also the tincture of opium of the U. S. Ph. of 1870 is ordered, which is certainly not an advantage in this case.

Instead of criticising the formula communicated to us, we will give a better one.

Deodorized Tincture of Opium	480 min.
Fluid Extract of Ipecac	48 "
Sugar	10 tr. oz.
Cinnamon Water, to make	12 fl. oz.

Mix the Deodorized Tincture of Opium with the Fluid Extract and 5 fl. oz. of Cinnamon Water, shake frequently during one hour, then filter, add the Sugar and enough Cinnamon Water to make 12 fl. oz. Dissolve by agitation and strain.

Each fluidrachm corresponds to 5 grains of Dover's Powder.

As the Deodorized Tincture of Opium of the U. S. is made to represent 10 per cent of its *weight* of opium, 480 *minims* of it are not exactly equivalent to 48 grains of opium. But the difference is so slight that it may be disregarded. If the tincture is prepared *strictly* according to the U. S. Ph. (1880), about 504 minims of it will represent 48 grains of opium.

No. 1,933.—**Blowpipe** (R.).

The name of the maker of the blowpipe figured in our last March number, page 45, is not mentioned in the publication from which we have taken it. But you may ascertain it by directing a letter of inquiry to Dr. Theodor Koller, care of A. Hartleben, Publisher, at Vienna, Austria. You had better inclose in your letter a sketch of the apparatus, so that he may recognize it at once.

No. 1,934.—**Tinctura Serpentariæ Composita** (F. S.).

Our correspondent says: "A prescription was brought to me for "Tinct. Serpentariæ Comp." What would you give for it? I gave tinct. cinchonæ co., but the party claims it is not correct."

There is a compound tincture of serpentaria used in eclectic practice. King's American Dispensatory gives the following formula:

Serpentaria	℥ 2
Ipecac	℥ 2
Saffron	℥ 2
Camphor	℥ 2
Opium	℥ 2
Diluted Alcohol or Holland Gin	fl. ℥ 96

Macerate for fourteen days, express and filter through paper.

King says that the above is the original and undoubtedly the best method of preparing this tincture, but he adds that some physicians are opposed to the opium and substitute in its place cypripedium root ℥ 8.

No. 1,935.—**Aroma for Dentifrice** (N. S.).

It is impossible for us to furnish the formula of the aroma of a certain manufacturer's dentifrice, as we do not know it. It will take a long time, and much expenditure of valuable material, to get at the approximate composition.

But we can give you at least the basis of an aroma of which a sample stands before us at present, and which we believe can be utilized to advantage. There is no orris in it, which may be considered a merit, because so many perfumes have been overdone with orris that many persons are tired of it. The combination we refer to is as follows:

Safrol	60 min.
Oil of Pinus Pumilio	20 "
" Curaçao	20 "
" Vetivert	1 "
" Wintergreen	2 "
" Anise, Saxony	4 "
" Rose Geranium	1 "

Dissolve in deodorized alcohol, and use a sufficient quantity for flavoring. Or dilute the alcoholic solution with much water, sweeten it with a little sugar, and use as a mouth-wash. It leaves a pleasant and refreshing taste in the mouth long after it has been used. As to the amount of water to be used for dilution, this may be carried to the limit of solubility of the oils used in the smallest quantity.

Safrol is the pure odorous portion of ordinary oil of sassafras, and is now obtained, by fractional distillation, from oil of camphor. It is much preferable to the crude natural oil. Oil of Pinus Pumilio is distilled from the needles of the mountain or mugho pine in southern Europe. It is prepared by Schimmel & Co., of Leipzig, and may be had from their New York agents. Oil of Curaçao must be carefully examined to make sure that it is free from terebinthinate odor or taste. If the oil of Pinus Pumilio is not very fresh and nice, it may be used in smaller quantity, or perhaps omitted altogether. A still finer flavor is afforded by the Oil of Pinus Picea, but this is more expensive.

No. 1,936. — **Druggists' General Receipt Book** (S. and J.).

As you say, most, or perhaps all, of the receipt books are defective in various directions, being either generally out of date, or barren in some important branches, or unreliable as to information. The best way, in our days, to get information is to carefully scan the files of the first-class pharmaceutical papers, and particularly the indexes of the completed volumes. Consult also our advertisement pages.

No. 1,937.—**Distillation of Essential Oils** (Tennessee).

Any description of the process of distillation, and the apparatus required for different purposes, which we could give in these columns at present, would be insufficient for you, as you appear to require instruction in the very rudiments of this operation. We can do nothing better, under the circumstances, than to refer you to some works, from which you will obtain the desired information.

We quote the following: Piesse, "The Art of Perfumery," (London; with illustrations of stills, etc.); Byrn, "The Complete Practical Distiller" (Philad.); Atkinson, "Die Fabrikation der ätherischen Oele" (Wien, second ed., with illustrations); Hofmann, C., "Chemisch-technisches Universal Receptbuch" (Berlin, 1880, vol. I., p. 168, etc.; many illustrations).

You may obtain any of these through some New York book dealer. Some of the German works quoted above

are specially useful; you will have to find some one to translate the important chapters for you.

No. 1,938.—**Breithaupt's Essential Oil Still** (Philadelphia).

We do not know the residence or address of the patentee of the essential oil still which we have given a description and illustration of in our March number. As is our usual custom, we do *not* ask inventors to place clichés, etc., at our disposal for publication in our journal, but we select what we deem of interest for our readers without being at any time influenced by any other considerations. This, by way of explanation, why we are unable to give the desired information. But you may easily obtain the latter by commissioning some prominent patent firm to ask their correspondents in Berlin to forward the desired address. Or write direct to a patent agent in Berlin, for instance, M. M. Rotten, Schiffbauerdamm 29*a*, Berlin, N. W. You might also consult a file of original German patents (which are no doubt kept on file in one of your libraries). The exact address of the patentee is usually given in the patent.

No. 1,939.—**Pulv. Hdg.** (Supplement to Query 1,893 in our March number).

Editor American Druggist:—"Pulv. Hdg." in Query 1,893 undoubtedly means "Pulv. Pil. Hydrarg.," which can be obtained from any jobber or any wholesale house.

W. V. SPINNING.

PERU, IND.

No. 1,940.—**Doctor of Pharmacy** ("Old Licentiate in Pharmacy").

There is only one pharmaceutical college in this country, viz., the National College of Pharmacy at Washington, which, by virtue of its charter, grants the degree of Doctor of Pharmacy to its graduates. The conditions under which this can be acquired may be learned by addressing the secretary of the college, Mr. R. L. Eliot.

No. 1,941.—**Granular Effervescent Hydrobromate of Caffeine** (J. H. L.).

We are not aware of the exact composition or mode of preparation of the commercial article named by our correspondent.

The hydrobromate of caffeine, like most of its other compounds with acids, is not a permanent salt, because the alkaloid will separate from the acid in the presence of water, which can be shown in various ways; for instance, by agitating the liquid with chloroform which will dissolve out the free caffeine.

We have applied to a well-posted friend for information regarding a formula for the preparation above mentioned. He states that the following formula will probably furnish a satisfactory product. He has employed it himself, having adopted some improvements in manipulation on the basis of certain processes recently given by Dieterich:

Caffeine	40 parts.
Benzoate Sodium	60 "
Bromide Sodium	20 "
Bicarbonate Sodium	400 "
Tartaric Acid	320 "
Sugar	400 "
Citric Acid	75 "
Alcohol	300 "

Reduce the first five ingredients to a fine powder, and mix them intimately. Then warm the mixture very gently in a capsule over a water-bath, and moisten it with the alcohol in which the citric acid had previously been dissolved. Rub the damp mass, by means of a pestle or other suitable non-metallic instrument through a sieve or colander, and dry the granular mass, again in thin layers, in a drying oven. Then rub it again gently through a suitable sieve to separate the granules. Whatever has fallen to powder may be added to the next batch.

The yield is about 1,300 parts. One grain of caffeine is contained in 33 grains of the product. The average dose, in cases when this remedy is taken in the present form, will be about 1 teaspoonful of the granulated salt, to be taken with water, while it effervesces.

No. 1,942.—**Haustus Ferri Sulph.** (J. W. G.).

"Please inform me what is the meaning of *Haust Ferri Sulph.* in the following recipe:

℞ Haust. Ferri Sulph	fl. ℥ viij.
Liq. Ext. Ergotæ	fl. ℥ ij.

M. et Sig. Fl. ℥ i. ter in die.

The writer of this prescription appears to have acquired his professional training in England or some of its dependencies. The *Haustus Ferri Sulphatis* is very likely a house-mixture in some British hospital, but we have been unable to identify it under this name, though we have examined Squire's Formulary of London Hospitals and many other works of reference. We could give many guesses, but a guess would not be a satisfactory answer. The extractum ergotæ liquidum is a preparation officinal in the British Pharmacopœia.

Should any of our readers be able to through light upon the query, we shall be obliged.

To give windows an appearance of frost in midsummer, apply a solution of Epsom salt in beer.

Pharmaceutical Associations in 1887.

THE following Calendar has been compiled and published by the *National Druggist*.

STATE.	MEETING.	PLACE.	DATE.	PRESIDENT.	SECRETARY.	LOCAL SECRETARY.	State Pharmacy Law.
Alabama	6th.	Mobile	May 10	A. L. Stollenwerck, Birmingham	P. C. Candidus, Mobile	W. F. Prince, Mobile	Yes.
Alaska Territory							No.
Arizona Ter							No.
Arkansas		Little Rock		Dr. J. B. Bond, Little Rock	J. R. Colburn, Little Rock		No.
California	18th.	San Francisco		Wm. Searby, San Francisco	F. Troppmann, San Francisco		No.
Colorado							Yes.
Connecticut	11th.	Meriden	Feb. 1-2	Frank M. Wilson, Willimantic	Fred. Wilcox, Waterbury	Jno. H. Parker, Meriden	Yes.
Dakota Territory				J. W. Von Meda, Fargo	W. L. Haussman, Grafton		Yes.
Delaware							Yes.
District of Col							Yes.
Florida							No.
Georgia	12th.	Cumberland Island	April 13	J. W. Stanford, Cuthbert	H. R. Slack, Jr., La Grange		Yes.
Idaho							No.
Illinois	8th.	Decatur	June 14	B. F. Gardner, Atlanta	L. C. Hogan, Englewood	W. C. Armstrong, Decatur	Yes.
Indiana	5th.	Richmond	June 7-8	Leo Eliel, South Bend	Frank S. Hereth, Indianapolis	Wm. H. Ross, Richmond	No.
Indian Territory							No.
Iowa	8th.	Waterloo	May 11	A. H. Miles, Des Moines	Rosa M. Upson, Marshalltown	C. D. Wangler, Waterloo	Yes.
Kansas	8th.	Wichita	June 8	W. C. Sears, Burlington	J. T. Moore, Lawrence	J. P. Allen, Wichita	Yes.
Kentucky	10th.	Louisville	May 18	J. W. Fowler, Louisville	W. B. McRoberts, Stanford	Edw. Goebel, Louisville	Yes.
Louisiana	5th.	New Orleans	April 13	Oscar Robin, New Orleans	L. F. Chalin, New Orleans		No.
Maine							Yes.
Maryland	3d.	Ocean City	July 19	A. J. Corning, Baltimore	M. L. Byers, Hagerstown		No.
Massachusetts	6th.	Holyoke	June 7	Henry Canning, Boston	Jos. W. Colcord, Lynn	Chas. E. Bardwell, Holyoke	Yes.
Michigan	5th.	Petoskey	July 12	F. J. Wurzburg, Grand Rapids	Stanley E. Parkhill, Owosso	Guy M. Harwood, Petoskey	Yes.
Minnesota	3d.	New Ulm	June 12	John R. Jones, Mankato	E. F. Allen, Minneapolis	Emil Wischcke, New Ulm	Yes.
Mississippi	3d.	Jackson	May 17	Byron Kemly, Jackson	H. F. West, Natchez		No.
Missouri	9th.	Sweet Springs	June 21	A. H. Caffee, Carthage	G. H. Chas. Kile, St. Louis	L. Kuntz, Brownsville	Yes.
Montana Ter							No.
Nebraska	6th.	Omaha	May 10	Jas. Reed, Nebraska City	Chas. J. Daubach, Omaha	N. A. Kuhn, Omaha	Yes.
Nevada							No.
New Hampshire	14th.	Manchester	Sept. —	Nelson S. Whitman, Nashua	Chas. B. Spofford, Claremont		Yes.
New Jersey		Paterson	May 18	F. B. Kilmer, New Brunswick	R. H. Van Sant, Trenton		Yes.
New Mexico Ter							No.
New York	9th.	Thousand Isl'd Park	June 21	Chas. Z. Otis, Binghamton	Clay W. Holmes, Elmira	R. E. Phillips, Fulton	Yes.
North Carolina		Ashville	Aug. 12	A. W. Rowland, Wilson	J. C. Munds, Statesville	B. E. Leadberry, Ashville	Yes.
Ohio	9th.	Akron	June 8	Virgil Coblentz	Louis C. Hopp, Cleveland	C. Truman	Yes.
Oregon							No.
Pennsylvania	10th.	Philadelphia	June 14	Jas. A. Meyers, Columbia	Jacob A. Miller, Harrisburg	Wm. B. Thompson, Philad'ia	No.
Rhode Island				F. J. Phillips, Providence	A. W. Wellington, Providence		Yes.
South Carolina		Charleston	Nov. —	C. P. Aimor, Charleston	P. Wineman, Charleston		Yes.
East Tennessee		Chattanooga	May 9	R. H. Gordon, Nashville	J. T. Lillyett, Memphis		No.
Texas	8th.	Fort Worth	May 10	Geo. W. Price, Bandera	W. L. Tucker, Waco	E. D. Aesch, Fort Worth	No.
Utah Territory							No.
Vermont							No.
Virginia	6th.	Richmond	May 10	Hugh Blair, Richmond	Ed. R. Beckwith, Petersburg	Polk Miller, Richmond	Yes.
Washington Ter							No.
West Virginia					C. Mornkemeller, Wheeling		Yes.
Wisconsin	8th.	Milwaukee	Aug. 10	F. M. Givens, Fond du Lac	E. B. Heimstreet, Jamesville	Adam Conrath, Milwaukee	Yes.
Wyoming							Yes.
A. P. A.	35th.	Cincinnati	Sept. 5	C. A. Tufts	J. M. Maisch, Philadelphia, Pa	Geo. W. Voss, Cincinnati	
N. R. D. A.		Cincinnati	Sept. 5	A. H. Hollister, Madison, Wis	L. E. Nicot, New York		
N. W. D. A.		Boston		D. R. Noyer, St. Paul, Minn	A. M. Mervin, Minneapolis		

SELECTIONS FROM THE HOSPITAL FORMULARY

OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION OF THE CITY OF NEW YORK.

(Continued from page 80.)

Correction.

In some of the formulæ taken from the Hospital Formulary of the Department of Public Charities and Correction, printed in our last number, some errors of the compositor have been accidentally overlooked. Our attention was drawn to them too late to make the correction in the same number. The *corrected* formulæ are the following:

219. *Petrolatum Cocainæ.*

℞ Cocainæ Hydrochloratis...gr. 2
Petrolati.....gr. 120

220. *Petrolatum Hydrargyri Ammoniati.*

℞ Hydrargyri Ammoniati....gr. 40
Petrolati.....gr. 480

222. *Petrolatum Hydrargyri Oxidi Rubri.*

℞ Hydr. Oxidi Rub.....gr. 60
Petrolati.....gr. 480

223. *Petrolatum Iodoformi et Atropinæ.*

℞ Iodoformi.....gr. 30
Atropinæ Sulphatis.....gr. 1
Petrolati.....gr. 240

224. *Petrolatum Physostigminæ.*

℞ Physostig. Salicyl.....gr. 2
Petrolati.....gr. 240

227. *Unguentum Calaminæ.*

℞ Calaminæ præpar.....part 1
Unguenti (*vel* Petrolati)..... " 5

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312. *Glyceritum Fellis Bovis* (*Glycerite of Ox-Gall*).

℞ Fellis Bovis Inspissati..... ℥ 3
Glycerini.....fl. ℥ 2
Acidi Salicylici.....gr. 10
Aquæ..... q. s. ad fl. ℥ 6

Mix the inspissated ox-gall with the glycerin, salicylic acid, and 1 fluidounce of water, and heat on a water-bath until the ox-gall is dissolved. Then allow it to cool, and add enough water to make 6 fluidounces.

313. *Glyceritum Hydrargyri Bichloridi.*

℞ Hydrargyri Chloridi Corrosivi. ℥ 8
Ammonii Chloridi..... 1
Glycerini.....q. s. ad fl. ℥16
Rosanilinæ Hydrochloratis....q. s.

Add the corrosive chloride of mercury, reduced to powder, and the chloride of ammonium, to 7 fluidounces of glycerin, previously heated on a water-bath. Continue the heat, constantly stirring with a glass rod, until solution has taken place. Allow the liquid to cool, then measure it, and make it up, with glycerin, to 16 fluidounces. Finally, tint it with a small quantity of solution of fuchsine, so as to impart to it a pinkish color.

Note.—Every 2 minims contain 1 grain of corrosive sublimate.

314. *Linimentum Aconiti et Belladonnæ Compositum* (*Bureau O. D. P.*).

℞ Tinct. Opii,
Chloroformi,
Tinct. Aconiti,
Tinct. Belladonnæ.....āā fl. ℥ ½
Linim. Saponis..... fl. ℥ 2

Mix. (*Dr. T. W. O. Flinn.*)

315. *Linimentum Aconiti et Chloroformi Compositum* (*Bureau O. D. P.*).

℞ Tinct. Aconiti,
Chloroformi,
Spir. Ammoniæ,
Olei Thymi,
Olei Terebinthinæ.....āā fl. ℥ 1
Spir. Camphoræ.. .... fl. ℥ 3

Mix.

316. *Linimentum Chloroformi Compositum* (*Char. Hosp.*).

℞ Chloroformi,
Tinct. Opii.....āā fl. ℥ 2
Linim. Saponis..... fl. ℥ 1½

Mix.

317. *Liquor Arsenii Bromidi, Clemens.* (*Clemens' Solution of Bromide of Arsenic.*)

℞ Acidi Arseniosi,
Potassii Carbonatis.....āā gr. 73
Bromi..... gr. 146
Aquæ.....q. s. ad fl. ℥ 16

Boil the arsenious acid with the carbonate of potassium and 10 fluidounces of water until solution is effected. Allow to cool, and add enough water to make 14 fluidounces. Then add the bromine, and, lastly, enough water to make 16 fluidounces. Agitate the mixture several times daily during a week, then set it aside until it is colorless (which will require several weeks), when it will be ready for use. Keep in a cool, dark place.

Note.—This solution contains, approximately, 1 per cent of arsenious acid.

318. *Liquor Atropinæ et Agaricini* (*Bell. Hosp.*)

℞ Agaricini.....gr. 10
Atropinæ Sulphatis.....gr. 1
Acidi Sulphurici Arom....♏ 1200

Dissolve and filter.

Dose.—10 minims, containing $\frac{1}{120}$ gr. of sulphate of atropine, $\frac{1}{10}$ gr. of agaricin, and 10 min. of aromatic sulphuric acid. To be administered in syrup or simple elixir. Used to prevent or allay sweating after administering antipyrin or other antipyretics; also, in cases of phthisis.

Note.—The agaricin to be used is the pure *white* agaricin of Merck. This is, properly speaking, agaricic acid.

319. *Liquor Electropœicus* (*Battery Fluid*).

a. *For the Carbon and Zinc Battery.*

1. For ordinary use:

℞ Bichromate of Potassium....6 av. oz.
Sulphuric Acid, commerc'l...5 fl. oz.
Water, cold.....3 pints.

Add the acid slowly to the water. When the liquid is cold, add the bichromate reduced to powder, and dissolve by stirring.

2. For use with the galvano-cautery:

℞ Bichromate of Potassium.. 6½ av. oz.
Sulphuric Acid, commerc'l 13 fl. oz.
Water, cold..... 3 pints.

To 1 pint of water add slowly 8 fluidounces of the acid, pour the mixture upon the powdered bichromate, and stir until it is dissolved. Then add 2 pints of water, and when the mixture has become cold, add 5 more fluidounces of the acid.

b. *For the Leclanché Battery.*

℞ Chloride of Ammonium .... 6 av. oz.
Water.....20 fl. oz.

Dissolve. Fill the cell with this solution to near the top.

320. *Liquor Hypophosphitum Compositus* (*Bell. Hosp.*).

℞ Calcii Hypophosphitis.....gr. 640
Sodii Hypophosphitis.....gr. 384
Potassii Hypophosphitis.....gr. 128
Liq. Ferri Hypophosphitis....♏ 384
Aquæ.....q. s. ad fl. ℥ 32

Dissolve and filter.

Dose—1 to 4 fluidrachms. (*Dr. W. M. Polk.*)

Note.—The solution of hypophosphite of iron is that of the New York and Brooklyn Formulary, 6 minims of which contain 1 grain of the salt.

321. *Liquor Morphinæ Sulphatis, "U. S."*
("*United States Solution of Morphine*").

℞ Morphinæ Sulphatis ..... gr. 1
Aquæ Destillatæ ..... fl. ℥ 1

Dissolve.

Note.—This is to be always dispensed, in this Department, in a flint-glass poison-bottle. Magendie's solution always in a *blue* poison-bottle.

322. *Liquor Opii Compositus, Squibb.*

COMPOUND SOLUTION OF OPIUM, SQUIBB.

℞ Liq. Opii Deodoratii.....fl. ℥ 14
Alcohol.....fl. ℥ 13
Chloroformi Purificati...fl. ℥ 1
Ætheris Acetici.....fl. ℥ 2

Mix. Dose—15 to 30 minims.

Note.—The preparation contains 6 grains of morphine.

323. *Liquor Potassii Chloratis et Ferri.*

"JACOBI'S SPECIAL."

℞ Potassii Chloratis.....gr. 80
Tinct. Ferri Chloridi....♏ 160
Glycerini.....fl. ℥ 2
Aquæ.....q. s. ad. fl. ℥ 8

Dissolve and mix. *Dose*—Half a fluidounce.—(*Dr. Abraham Jacobi.*)

324. *Liquor Sodii Salicylatis.*

To prepare a solution of salicylate of sodium of a given strength from salicylic acid and bicarbonate of sodium, the following proportions are required, in which the acid is always slightly in excess.

Salicylic Acid.	Bicarbonate of Sodium.	Make Salicylate of Sodium.
90 grains.	50 grains.	100 grains.
170 "	100 "	200 "
260 "	150 "	300 "
345 "	200 "	400 "
415 "	240 "	1 troy oz.
430 "	250 "	500 grains.

Note.—The solution should be made so that the acid always predominates, otherwise it will gradually turn dark. The acid should first be mixed with the water, and the bicarbonate should be added gradually to it. The darkening of this solution may also be prevented by dissolving in the water a small quantity of hyposulphite of sodium (about 120 grains for each pint of solution).

325. *Mistura Anodyna* (Bell. Hosp.).

"GIBSON'S SPECIAL."

℞ Tinct. Opii.....♏ 90
Ext. Belladonnæ Fl.....♏ 16
Chloroformi Purificati....♏ 30
Syrupi,
Aquæ.....āā fl. ℥ 4

Mix.

326. *Mistura pro Asthmate* (Bell. Hosp.).

ASTHMA MIXTURE.

℞ Liq. Morphinæ Sulph., "U. S." }
Spir. Ætheris Comp..āā part. æqu.

Mix. *Dose*—A teaspoonful.

327. *Morell's Embalming Liquid.*

Arsenious Acid.....14 parts.
Soda (caustic).....7 "
Carbolic Acid..a suff. quantity.
Water, enough to make 100 parts.

Dissolve the arsenious acid and the caustic soda in 20 parts of water with the aid of heat. Allow the solution to cool, and then add to it just enough carbolic acid to render it opalescent. Finally, add enough water to make the product weigh 100 parts.

Used for embalming, and for preserving anatomical specimens.

328. *Mueller's Fluid.*

Bichromate of Potassium..... } 2 to 2½ parts.
Sulphate of Sodium.. 1 part.
Water, enough to make 100 parts.

Dissolve. Used for hardening and preserving anatomical specimens.

329. *Saturation Tables.*

The following two tables give the equivalent quantities of the more important acids and alkalies required to saturate, respectively, 10 parts by weight of each.

Where a percentage figure is given behind the name of an acid or alkali, this indicates the percentage strength required by the U. S. Pharmacopœia.

I.—Saturation Table for Acids.

10 Parts of any of the following Acids	require for saturation the following parts of					
	Ammonium Carbonate.	Magnesium Carbonate.	Potassium Carbonate, 81%.	Potassium Bicarbonate.	Sodium Carbonate, 96%.	Sodium Bicarbonate, 99%.
Acetic Acid (36%)	3.14	2.90	5.11	6.00	8.94	5.09
Citric Acid	7.48	6.91	12.17	14.29	21.28	12.29
Hydrochloric Acid (31.9%)	4.59	4.24	7.46	8.76	12.53	7.44
Nitric Acid (69.4%)	5.19	5.33	8.45	9.91	14.77	8.41
Salicylic Acid	3.79	3.51	12.35	7.25	10.79	6.15
Sulphuric Acid (96%)	10.25	9.48	16.69	19.59	29.18	16.62
Tartaric Acid	6.98	6.45	10.36	13.33	19.86	11.31

II.—Saturation Table for Alkalies.

10 Parts of any of the following Alkalies	require for saturation the following parts of						
	Acetic Acid, 36%.	Citric Acid.	Hydrochloric Acid, 31.9%.	Nitric Acid, 69.4%.	Salicylic Acid.	Sulphuric Acid, 96%.	Tartaric Acid.
Ammonium Carbonate	31.85	13.38	21.80	17.34	26.37	9.75	14.33
Magnesium Carbonate	34.44	14.46	23.57	18.76	28.51	10.54	55.49
Potassium Carbonate (81%)	20.65	8.22	13.39	10.66	16.20	5.84	8.80
Potassium Bicarbonate	16.67	7.00	11.44	9.08	13.80	5.10	7.50
Sodium Carbonate (96%)	11.16	4.70	7.66	6.09	9.26	3.4	5.03
Sodium Bicarbonate (99%)	19.64	8.25	13.45	10.70	16.22	6.01	8.84

329a. *Table of the Solubility of the More Common Chemicals.*

One (1) part, by weight of the substance, is soluble at about 60° F., in the stated number of parts, by weight of water.

Note.—Chemicals which are very little soluble, or practically insoluble in water (such as subnitrate of bismuth, oxalate of cerium, santonin, etc.) are here omitted. Many of those omitted are soluble in alcohol or other solvents.

Explanation of abbreviations: v. s., very soluble. sp. s., sparingly soluble.

Acid, Arsenious	30–80
" Benzoic	500
" Boric	25
" Carbolic	20
" Citric	0.75
" Gallic	100
" Oxalic	9
" Salicylic	450
" Tannic	6
" Tartaric	0.7
Alum	10.5
Aluminium Sulphate	1.2
Ammonium Benzoate	5
" Bromide	1.5
" Carbonate	4
" Chloride	3
" Iodide	1
" Nitrate	0.5
" Phosphate	4
" Sulphate	1.3
Ammonium Valerianate	v. s.
Antifebrin (Acetanilide)	200
Antimony and Potassium Tartrate	17
Antipyrin	0.8
Apomorphine Hydrochlorate	6.8
Atropine	600
" Sulphate	0.4
Barium Chloride	2.5
" Nitrate	13
Butyl-Chloral (Croton-Chloral)	20
Cadmium Sulphate	2
Caffeine	75
" Sodio-Benzoate	v. s.
" Sodio-Salicylate	v. s.
Calcium Bromide	0.7
" Chloride	1.5
" Hypophosphite	6.8
Chloral	v. s.
Cinchonidine	1680
" Sulphate	100
Cinchonine	3700
" Sulphate	70
Cocaine	704
" Hydrochlorate	v. s.
Copper Acetate	15
" Sulphate	2.6
Codeine	80
" Phosphate	4
Hyoscyamine Sulphate (amorphous)	v. s.
Glycyrrhizin Ammoniated	v. s.
Iron and Amm. Citrate	v. s.
" " " Sulphate	3
" " " Tartrate	v. s.
" " Potass. Tartrate	v. s.
" " Quinine Citrate	v. s.
" " Strychnine Citrate	v. s.
" Chloride	v. s.
" Citrate	v. s.
" Hypophosphite	sp. s.
Iron Lactate	40
" Phosphate (scales)	v. s.
" Pyrophosphate (scales)	v. s.
" Sulphate	1.8.
Lead Acetate	1.8.
" Nitrate	2
Lime Caustic	750
" Chloride (Bleaching Powder)	20
Lithium Benzoate	4
" Bromide	v. s.
" Citrate	5.5.
Lithium Salicylate	v. s.
Magnesium Chloride	1
" Sulphate	0.8
" Sulphite	20
Manganese Sulphate	0.7
Mercury Bichloride	16
" Cyanide	12.8
Morphine	1000
" Acetate	12
" Hydrochlorate	24
" Sulphate	24
Physostigmine (Eserine) Salicylate	130
" Sulphate	v. s.
Potassa (caustic)	0.5
Potassium Acetate	0.4
" and Sod. Tartrate	2.5
" Bicarbonate	3.2
" Bichromate	10
" Binoxalate	25
" Bitartrate	210
" Bromide	1.6
" Carbonate	1
" Chlorate	16.5
" Chloride	3
" Citrate	0.6
" Cyanide	2
" Ferricyanide	2.5
" Ferrocyanide	4
" Hypophosphite	0.6
" Iodide	0.8
" Nitrate	4
" Permanganate	20
" Sulphate	9
" Sulphite	4
" Tartrate	0.7
Quinidine	2000
" Sulphate	100
Quinine, anhydrous	1960
" hydrated	1600
" Bisulphate	10
" Hydrobromate	16
" Hydrochlorate	34
" Lactate	4
" Sulphate	740
" Valerianate	100
" and Urea Hydrochlorate	1
Resorcin	0.7
Salicin	28
Silver Nitrate	0.8
Soda (caustic)	1.7
Sodium Acetate	3
" Arseniate	4
" Benzoate	1.8
" Bicarbonate	12
" Bisulphite	4
" Borate	16
" Bromide	1.2
" Carbonate	1.6
" Chlorate	1.1
" Chloride	2.8
" Hypophosphite	1
" Hyposulphite	1.5
" Iodide	0.6
" Nitrate	1.3
" Phosphate	6
" Pyrophosphate	12
" Salicylate	1.5
" Sulphate	2.8
" Sulphite	4
" Sulphocarbolate	5
Strychnine	6700
" Acetate	60
" Sulphate	10
Sugar (cane)	0.5
" of Milk	7
Thalline Sulphate	7
Thymol	1200
Urethan	v. s.
Zinc Acetate	3
" Bromide	v. s.
" Chloride	v. s.
" Iodide	v. s.
" Sulphate	0.6
" Sulphocarbolate	2

330. *Table showing the Percentage of anhydrous Base in the principal alkaloidal Salts.*

Note.—The figure placed behind each salt indicates the percentage of anhydrous alkaloid contained therein. For instance, Quinine Sulphate, 74.3, means that 100 parts of commercial crystallized sulphate of quinine contain 74.3 parts of pure anhydrous quinine.

Aconitine Nitrate, cryst.[1]	91.1
Atropine Sulphate	85.5
Apomorphine Hydrochlorate	87.9
Cinchonidine Sulphate	79.4
Cinchonine Sulphate	81.4
Cocaine Hydrochlorate, anhydrous	89.2
" " hydrated,[2]	80.7
Codeine Hydrochlorate	80.4
" Phosphate	70.5
Digitaline,[3]	—
Hyoscyamine Sulphate, amorphous,[4]	85.5
Morphine Acetate	71.4
" Hydrochlorate	75.9
" Sulphate	75.2
Physostigmine Salicylate,[5]	66.6
" Sulphate,[5]	84.9
Pilocarpine Hydrochlorate	85.1
Quinidine Sulphate	82.9
Quinine Acetate	75.5
" Bisulphate	59.1
" and Iron Citrate	12.0
" Hydrate	85.7
" Hydrobromate	73.5
" Hydrochlorate	81.7
" and Urea, Hydrochlorate	69 0
" Lactate	78.2
" Salicylate	70.1
" Sulphate	74.3
" Tannate about	20.0
" Valerianate	72.9
Strychnine Acetate	86.2
" and Iron, Citrate	1.0
" Nitrate	84.1
" Sulphate	74.8

1. Compare Note to No. 159. (January number, page 13.)

2. Hydrochlorate of Cocaine, when crystallized from a watery solution, contains 2 molecules of water. This is the salt as usually supplied by manufacturers. But the anhydrous salt, more or less crystalline, is also obtainable. This contains 89.2 per cent of alkaloid.

3. This is quoted here only for the purpose of attaching some remarks of practical interest. Digitalis contains a number of different principles which it is quite difficult to separate, and many of which have at one time or another been designated by their discoverers as "digitaline." Different processes, even with only slight modifications of solvents, produce varying mixtures of principles. In prescribing *digitaline*, therefore, the physician should specify the particular kind wanted, either by mentioning the manufacturer (Merck, etc.) or other authority, according to which it is prepared. (For instance: Digitaline, amorphous, *Codex*, or Digitaline, crystallized, *Codex*.) Merck's Digitaline (Digitalinum purum pulveratum, so-called "German Digitaline") consists principally of digitalein, is soluble in water (and therefore has no cumulative effect) and alcohol, but insoluble in ether and chloroform. Its average dose is 1-60th to 1-30th of a grain. The crystallized Digitaline of the French Pharmacopœia is that prepared after Homolle's process, but the additional purification of chloroform makes it about twice as strong. It is almost insoluble in water (and therefore acts cumulatively) and in ether, but soluble in chloroform, and less so in alcohol. Its dose is about 1-120th to 1-60th of a grain.

If Digitaline is prescribed without further specification, the so-called German Digitaline (Digitalinum purum pulveratum) of Merck ought to be supplied.

None of the principles extracted from Digitalis fully represent the crude drug in all its properties.

4. Compare Note to No. 166. (Jan. number, p. 14.)

5. Notice the great difference in the percentage of alkaloid in these two salts. Compare also Note to No. 168. (January number, page 14.)

331. *Transfusion Fluid.*

a. Billroth's.

Sodium Phosphate	gr.	3
Sodium Carbonate	"	20
Ammonium Carbonate	"	20
Sodium Chloride	"	60
Alcohol	♏	160
Distilled Water, enought to make	fl. oz.	20

b. Little's.

Sodium Phosphate	gr.	3
Potassium Chloride	"	6
Sodium Carbonate	"	40
Sodium Chloride	"	60
Distilled Water, enough to make	fl. oz.	20

c. Weber's.

Sodium Bicarbonate	gr.	6
Calcium Chloride	"	6
Potassium Chloride	"	6
Sodium Chloride	"	480
Distilled Water, enough to make	fl. oz.	8

For use, dilute 1 fl. oz. of this solution with water at 120° F., so as to make 16 fl. oz.

332. *Volkmann's Antiseptic Liquid.*

Thymol	1 part.
Alcohol	10 parts.
Glycerin	20 "
Water	100 "

Dissolve the thymol in the alcohol, add the glycerin, and lastly the water.

Used as an antiseptic on wounds and dressings.

333. *Wickersheimer's Fluid.*

	I.	II.
Arsenious Acid	60	50 gr.
Chloride of Sodium	5	4 dr.
Sulphate of Potassium	13	10 "
Nitrate of Potassium	100	70 gr.
Carbonate of Potassium	80	60 "
Glycerin	35	35 fl. oz.
Methylic Alcohol	6	6 fl. oz.
Water, enough to make	128	128 fl. oz.

Prepare a solution after either of these formulæ, according to the object for which the solution is wanted.

No. I. is intended for preserving bodies or anatomical specimens by *injection*, and No. II., which is weaker, is used for preserving them by *immersion*.

Note.—The original formula was purchased from the inventor and patentee by the Prussian Government, and then officially published. It contained several incompatible ingredients, and has gradually been modified to the composition given above.

New-mown Hay.

Tonca Beans, cut	75 grs.
Orris Root	150 "
Vanillin	8 "
Oil Bergamot	30 drops.
" Neroli	2 "
" Rose	2 "
" Lavender	2 "
" Cloves	1 drop.
Patchouly Herb	3 grs.
Benzoic Acid	8 "
Nettle Herb	30 "
Alcohol, deodor	7 troy oz.

Digest 14 days and filter.

Mille Fleur Essence.

Oil Cinnamon	10 drops.
" Neroli	20 "
" Rose	20 "
" Cloves	10 "
" Bigarade	30 "
" Calamus	20 "
" Geranium	150 min.
" Lemon	240 "
" Bergamot	2 fl. oz.
" Verbena	75 min.

White Rose Essence.

Oil Rose	15 drops.
Patchouly Herb	3 grs.
Musk	3 "
Deodorized Alcohol	7 troy oz.

Digest 14 days and filter.—After *Neueste Erf. und Erf.*

Black Gloss for Leather, Shoes, etc.

A GOOD preparation is said to be the following:

Lampblack	4 parts.
Oil of Turpentine	15 "
Shellac	45 "
Burgundy Pitch	20 "
Sandarac	2 "
Wood Spirit	360 "

To be digested in a closed flask at a gentle heat.

Another authority recommends to replace the lampblack by a suitable quantity of alcohol-soluble nigrosine.

Preparations for the Teeth.

MILLER, of Berlin, in an article upon the care of the teeth, published in the *Therapeutische Monatshefte* for March, 1887, gives the following as useful formulæ:

℞ Calcii Carbon. præcip.	ʒ 3¾
Cort. Chin. fusc	ʒ 15
Conch. præparat	ʒ 15
Pulv. Myrrh	ʒ 7½
Pulv. Caryophyll	ʒ 3¾
Ol. Cinnamomi	gtt. 10–15.

M. exact. f. pulv.

The following is recommended as an efficient tooth soap:

℞ Magnesii Carbon.,	
Rhiz. Irid. Florent.,	
Talci,	
Sapo. Medicat	ää grs. 75
Ol. Menth. Pip	gtt. 10.
Mucilag. Gum. Arab	q. s.

After a series of experiments the writer has fixed upon the following mouth-wash as the best germicide and antiseptic for use in the mouth:

℞ Acid. Thymic	grs. 4.
Acid. Benzoic	grs. 45.
Tinct. Eucalypt	ʒ 3½.
Alcohol. Absol	ʒ 25.
Ol. Gaultheriæ	gtt. 25.
(Sive Ol. Menth. Pip	gtt. 20.)

M. D. S.

Of this liquid a teaspoonful should be put in a glass of water, and the mouth should be rinsed after each meal, and before retiring.—*Med. News.*

Kittary's Aromatic Carbolic Disinfectant.

THE following is the composition of the "Aromatic Carbolic Liquid," originated by the Russian Privy Councillor, Modest Kittary:

Extract of Musk	1,300 grs.
Phosphorized Carbolic Acid	256 "
Oil of Wintergreen	1,100 "
Acetic Ether	1,550 "
Alcohol	10½ lbs.
Distilled Water	22 "

Melt 256 grs. of carbolic acid at a gentle heat; drop into it a small piece of phosphorus and keep in a warm place, occasionally shaking until the phosphorus is dissolved. Introduce the product into a suitable bottle, add to it the oil of wintergreen and the acetic ether and the extract of musk, and mix thoroughly. Pour the mixture into a vessel containing the alcohol, stir well, and, if the mixture is not quite clear, filter it. Next add the water in one lot and stir. If the solution does not clear up, add a little more alcohol until it becomes transparent.

The extract of musk is to be prepared in the following manner:

Upon 12 grains of musk contained in a bottle, pour 19 av. oz. of acetic ether, and shake frequently during several days. Pour off the yellow liquid, and treat the residue with fresh portions of the menstruum until the musk is exhausted of everything soluble in the ether. Then prepare from the purified musk an extract by means of alcohol.

Disinfectant for the Air of Sick-Rooms.

THE following was recently recommended by a member of the Berlin Medical Society as an effective disinfectant, specially suitable for the air of sick-rooms:

Oil of Rosemary	10 parts.
" Lavender	2.5 "
" Thyme	2.5 "
Nitric Acid	30 "

Shake well before use, then saturate a sponge with it, and expose it to the air in this condition.—*Pharm. Zeit.*

Formation of Salt Plains.

On the eastern coast of the Caspian Sea a curious phenomenon is in progress. The Kara Bobhaz is an estuary nearly separated from the main body of the sea by a bank through which there is an inlet. The evaporation from this gulf is so great that a current continually sets in from the Caspian; and as there is no return current the water of the gulf becomes more and more saliferous, and a deposit of salt is in course of formation. In time this gulf will be cut off from the Caspian, and will then be dried up and become an extensive salt-bed.

Phosphate Rock.

The phosphate-rock deposits of the State of South Carolina form her most important and valuable mining interest. The rock is found in the streams and ore land. The stream or river rock occurs at the bottom of various streams and rivers, and is raised by hand with tongs or by powerful steam-dredges, which furnish the bulk of the supply. A royalty of $1 per ton of crude rock is paid to the State on all rock mined in the navigable streams of the State, all such mining being done under license from the State. This royalty, amounting in 1886 to $196,089, formed an important part of the revenue. The land rock deposits are the property of individuals or companies, and pay no royalty to the State. The rock occurs at various depths, 10 feet being the limit of economical excavations, and is obtained entirely by surface mining. The economic excavation and utilization of river rock dates from about the year 1870; of land rock, 1867. The production of land rock has increased from 18,000 tons in 1868-70 to 294,000 tons; in 1886, of river rock, from 1,989 tons to 191,174 tons. The total amount of land rock produced from 1868 to 1886, inclusive, has been 1,991,000 tons; of river rock, 1,592,256 tons; or a total production of 3,583,256 tons, which, at an average selling price of $6 per ton, gives $21,499,536 as the value of the product of this industry.

IT is a bad custom when physicians' prescriptions are discontinued by a patient to store away the remnants in vials and boxes, writes a correspondent. Preparations carefully compounded for special cases and conditions may become absolutely injurious by lapse of time, and under certain circumstances some articles change their character by being kept in small quantities. There are a few simple preparations which may be kept in the house; even of these, the fewer kept the better. But of all things injudicious, amongst the most so is the giving to one person, without medical advice, the medicine prescribed for another. It would seem in some families that the members considered themselves as residuary legatees, entitled to appropriate all the remainders of the doses prescribed for a relative by a physician after his visits are discontinued.